September 1974 Number 361-Part I

Solar-Geophysical Data prompt reports

Data for August 1974–July 1974

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA SERVICE / ASHEVILLE, N.C.

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Robert M. White. Administrator
ENVIRONMENTAL DATA SERVICE
Thomas S. Austin, Director

Solar - Geophysical Data

NO. 361 SEPTEMBER 1974

Part I (Prompt Reports)

DATA FOR
AUGUST 1974
JULY 1974

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

For obtaining bulletins on a data exchange basis, send request to: World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado 80302.

For sale through the National Climatic Center, Federal Building, Asheville, NC 28801, Attn: Publications. Subscription Price: $30.50 annually for both Part I (Prompt Reports) and Part II (Comprehensive Reports) or $15.50 annually for either part. Extra issue included. For foreign mailing add $8.00 for both parts or $4.00 for either part. Single issue price $1.25 for either part and 75¢ for the extra issue. Make checks and money orders payable to: Department of Commerce, NOAA.

* * * * *

To standardize referencing these reports in the open literature, the following format is recommended:

Solar-Geophysical Data, CRPL-FB 135*, pages, issue date, U.S. Department of Commerce, (Boulder, Colorado, U.S.A. 80302).

*CRPL-FB 135 through 269
IER-FB 270 through 298
299 Part I or 299 Part II to number of current issue.

SOLAR - GEOPHYSICAL DATA

No. 361

Issued in two parts

Hope I. Leighton, Editor

J. Virginia Lincoln, Director
Solar - Terrestrial Data Services Division

CONTENTS

Part I (Prompt Reports)

	Page
Index for 1973 and 1974	2
Data for August 1974	3-23
Data for July 1974	25-134

Part II (Comprehensive Reports)

Index for 1973 and 1974	2
Data for March 1974	3-13
Data for February 1974	15-22
Miscellaneous Data Solar Radio Waves -- Spectral - Harvard -- June 1974	24-25

INDEX FOR 1973 - 1974 DATA PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1973					1974							
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
A.	Solar and Interplanetary Phenomena													
A.1	Sunspot Drawings	350	351	352	353	354	355	356	357	358	359	360	361	
A.2a	Zürich Provisional Relative Sunspot Numbers R_Z	349	350	351	352	353	354	355	356	357	358	359	360	361
A.2b	Zürich Final Sunspot Numbers R_Z	355	355	355	355	355								
A.2c	American Relative Sunspot Numbers R_A'	349	350	351	352	353	354	355	356	357	358	359	360	361
A.3a	Mt. Wilson Magnetograms	350	351	352	353	354	355	356	357	358	359	360	361	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	350	351	352	353	354	355	356	357	358	359	360	361	
A.4	Hα Spectroheliograms	350	351	352	353	354	355	356	357	358	359	360	361	
A.5	Calcium Plage Drawings - McMath (or Catania)	350	351	352	353	354	355	356	357	358	359	360	361	
A.5a	Calcium Plage (McMath) and Sunspot Regions	350	351	352	353	354	355	356	357	358	359	360	361	
A.5b	McMath Daily Calcium Plage Index	350	351	352	353	354	355	356	357	358	359	360	361	
A.6	Hα Synoptic Charts	350	351	352	353	354	355	356	357	358	359	360	361	
A.7b	Coronal Line Emission	350	351	352	353	354	355	356	357	358	359	360	---	
A.7c	White-Light Corona (NRL OSO-7, 1971-083A)	350	351	352	353	354	355	356	357	---	---	---	---	
A.7d	Solar EUV Spectroheliogram Fe XV 284 Å (GSFC OSO-7, 1971-083A)	350	351	352	353	354	355	356	356	357	358	359	360	361
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	349	350	351	352	353	354	355	356	357	358	359	360	361
A.8ac	2800 MHz - Daily Values of Adjusted Solar Flux (ARO-Ottawa)	349	350	351	352	353	354	355	356	357	358	359	360	361
A.8g	Daily Values of Adjusted Solar Flux (AFCRL)	350	351	353	353	354	356	356	---	---	---	---	---	
A.9c	8.6 mm Radio Maps of the Sun (Prospect Hill)	350	351	352	353	354	355	356	357	358	359	360	361	
A.10a	169 MHz - Interferometric Observations (Nançay)	349	351	351	353	353	354	355	356	357	358	360	360	361
A.10c	21 cm East-West Solar Scans (Fleurs)	349	351	351	353	353	354	355	356	357	358	360	360	361
A.10d	43 cm East-West Solar Scans (Fleurs)	349	350	351	352	353	354	355	356	357	358	359	360	361
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	350	351	352	353	354	355	356						
A.11aa	Solar X-ray Radiation (Explorer 37 or 44)	354	355	356	357	358	359							
A.11ab	Solar X-ray Radiation (Explorer 37 or 44) Graphs	350	351	352	353	354	355	356	357	358	359	360	361	
A.11f	Solar X-ray Spectroheliograms (GSFC OSO-7, 1971-083A)											360	361	
A.9d	2 cm Radio Maps of the Sun (NELC - La Posta)												360	361
A.12d	Solar Protons (NOAA 2 & 3) Graphs	349	350	---	352	353	---	---	356	---	---	---	---	361
A.12ba	Cosmic Ray Protons (Pioneers 6 & 7)	349	350	351	352	353	354	355	356	---	358	---	360	361
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	349	350	---	352	353	---	---	356	---	---	---	---	361
A.13a	Solar Wind (Pioneers 6 & 7)	349	350	---	---	353	354	---	---	---	---	---	360	361
A.17	Interplanetary Magnetic Field (Pioneer 8)	349	350	351	352	353	354	355	356	---	358	---	360	361
A.17	Interplanetary Magnetic Field (Pioneer 9)	349	350	351	352	353	354	355	356	357	358	359	360	361
A.17c	Inferred IP Magnetic Field	349	350	---	---	353	354	---	---	---	---	---	360	361
A.18	Interplanetary Electric Field (Pioneer 8)	349	350	351	352	353	354	355	356	---	358	---	360	361
A.18	Interplanetary Electric Field (Pioneer 9)													
B.	Ionospheric (and Radio Wave Propagation) Phenomena													
B51ca	High Latitude Quality Figures and Forecasts	350	351	352	353	354	355	356	357	358	359	360	361	
B.52	Graphs of Transmission Frequency Range	350	351	352	353	354	355	356	357	358	359	360	361	
B.53	Quality Figures Based on Frequency Ranges	350	351	352	353	354	355	356	357	358	359	360	361	
C.	Flare-Associated Events													
C.1a	Optical Observations Flares	349	350	351	352	353	354	355	356	357	358	359	360	361
C.1ba	Optical Observations Flares (Including Standardized Data)	354	355	356	357	358	359	360	361					
C.1d	Flare Patrol Observations	349	350	351	352	353	354	355	356	357	358	359	360	361
C.1e	Flare Indices (by day)	354	355	356	357	358	359	360	361					
C.1f	Flare Index by Region	355	356	357	358	359	360	361						
C.3	Solar Radio Waves - Fixed Frequencies - Outstanding Occurrences	354	355	356	357	358	359	360	361					
	Solar Radio Waves - Fixed Frequencies - Selected	349	350	351	352	353	354	355	356	357	358	359	360	361
C.3t	43.25, 80 and 180 MHz Selected Bursts (Culgoora)	350	351	352	353	354	355	356	357	359	359	360	361	
C.4	Solar Radio Spectral Observations	350	351	352	353	354	355	356	357	358	359	360	361	
C.5c	Solar X-ray Radiation (Explorer 37)	350	351	352	353	354	355	356						
C.6	Sudden Ionospheric Disturbances	350	351	352	353	354	355	356	357	358	359	360	361	
D.	Geomagnetic and Magnetospheric Phenomena													
D.1a	Geomagnetic Indices C1, Cp, Kp, Ap, aa - Selected Days	350	351	352	353	354	355	356	357	358	359	360	361	
D.1b	27-Day Chart of Kp Indices for Year	354	354	354	354	354	355	356	357	358	359	360	361	
D.1c	27-Day Chart of C9 for Year	354	354	354	354	354	355	356	357	358	359	360	361	
D.1d	Principal Magnetic Storms	350	351	352	353	354	355	356	357	358	359	360	361	
D.1e	Reduced Magnetograms	---	---	356	---	---	359	---	---					
D.1f	Sudden Commencement and Solar Flare Effects	350	351	352	353	354	355	356	357	358	359	360	361	
D.1g	Equatorial Indices Dst	350	351	352	353	354	355	356	357	358	359	360	361	
F.	Cosmic Rays													
F.1a	Cosmic Ray Neutron Counts (Deep River)	350	351	352	353	355	356	357	357	358	359	360	361	
F.1b	Cosmic Ray Neutron Counts (Climax)													
F.1c	Cosmic Ray Neutron Counts (Dallas)	350	352	352	353	354	355	356	357	---	---	---	---	
F.1e	Cosmic Ray Neutron Counts (Alert)	350	351	352	353	355	356	357	357	358	359	360	361	
F.1f	Cosmic Ray Neutron Counts (Calgary)	350	351	352	353	354	355	356	357	358	359	360	361	
F.1g	Cosmic Ray Neutron Counts (Sulphur Mountain)	350	351	352	353	354	355	356	357	358	359	360	361	
F.1h	Cosmic Ray Neutron Counts (Thule)	350	351	352	353	354	355	356	357	358	359	360	361	
F.1i	Cosmic Ray Neutron Counts (Kiel)					354	355	356	357	358	359	360	361	
F.1j	Cosmic Ray Neutron Counts (Tokyo)					354	355	356	357	358	359	360	361	
H.	Miscellaneous													
H.60	IUWDS Alert Decisions	349	350	351	352	353	354	355	356	357	358	359	360	361
H.62	Abbreviated Calendar Record	355	356	357	358	359	360	361						

AUGUST 1974 DATA

Contents

	Page
Alert Period	
IUWDS Alert Periods (Advance and Worldwide)	4-5
Daily Solar Indices	
12-Month Tables Sunspot Numbers, R_z, and 2800 MHz Flux Adjusted to 1 A.U.	6
Combined Table Sumspot Numbers and Solar Fluxes	7
Graph of Sunspot Cycles	8
Zürich Smoothed Observed and Predicted Sunspot Numbers	9
Solar Flares	
Flares of Numerical Importance 1 or Greater	10
Subflares	11
No-Flare-Patrol Chart	12
Solar Radio Waves	
169 MHz Solar Interferometric Chart - Nancay	13
10.7 cm East-West Solar Scans - ARO, Ottawa	14
21 cm East-West Solar Scans - Fleurs	15
43 cm East-West Solar Scans - Fleurs	16
Selected Fixed-Frequency Occurrences	17
Spacecraft Observations	
Pioneers VI & VII	18
Pioneers VIII & IX	19
Solar Proton Monitoring	
NOAA 2 & 3	20-22
Inferred IP Magnetic Field Polarities	23

For explanations of the data contained herein see *Descriptive Text* published as supplement to February 1974 *Solar-Geophysical Data* (Number 354).

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1974

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS).

20/0423Z MAGSTORM BEGINS 18/21XX GRADUALLY INCREASED TO STORM AT 20/0000Z
23/1255Z MAGSTORM IN PROGRESS 23/1130Z 0600-0900Z, K=5, 0900-1200Z K=5.
29/0400Z RECURRENT MAGSTORM BEGINS 29/0300Z BOULDER K-INDEX EQUALS SIX.

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
213	01	31	065	085	06	S09W67	1	0	0		01	S09W67	Q	SOLQUIET
						S15W20	0	0	0			S15W20	Q	MAGQUIET
						S08W31	3	0	0			S08W31	Q	
						S02E17	0	0	0			S02E17	Q	
214	02	01	056	083	08	S14W32	1	0	0		02	S14W32	Q	SOLQUIET
						S09W43	2	1	0			S09W43	Q	MAGQUIET
						S15W21	0	0	0			S15W21	Q	
215	03	02	026	083	17	S10W58	0	0	0	MINOR GEOMAGNETIC STARTED 02/1225Z SUBSTORM LEVEL	03	S10W58	Q	SOLQUIET MAGALERT 03/06
216	04	03	029	081	23	S09W74	2	0	0	MINOR GEOMAGNETIC	04	S09W74	Q	SOLQUIET
						S11E56	0	0	0	DISTURBANCE CONTINUES AT SUBSTORM LEVEL		S11E56	Q	MAGALERT 04/08
217	05	04	026	084	16	S10W87	1	0	0	MINOR GEOMAGNETIC	05	S10W87	Q	SOLQUIET
						S09E74	0	0	0	SUBSTORM CONTINUES		S09E74	Q	MAGALERT 05/08
218	06	05	029	084	15	S09E62	0	0	0		06	S09E62	Q	SOLQUIET
						S06E77	0	0	0			S06E77	Q	MAGALERT 06/08
219	07	06	055	085	15	S12E08	0	0	0		07	ALL		SOLQUIET
						S09E47	1	0	0			GROUPS	Q	MAGALERT MINOR 07/08
						S06E61	2	0	0					
						S18E83	1	0	0					
220	08	07	059	083	20	S09E34	1	0	0		08	ALL		SOLQUIET
						S06E46	2	0	0			GROUPS	Q	MAGALERT MINOR 08/09
						S17E59	0	0	0					
						S14E43	0	0	0					
221	09	08	062	087	22	S09E21	1	0	0		09	ALL		SOLQUIET
						S06E33	1	0	0			GROUPS	Q	MAGALERT MINOR 09/09
						S18E51	1	0	0					
222	10	09	068	085	10	S09E06	2	0	0		10	S09E06	Q	SOLQUIET
						S07E19	0	0	0			S07E19	Q	MAGALERT MINOR 10
						S06E50	0	0	0			S06E50	Q	
						N08E78	0	0	0			N08E78	Q	
223	11	10	064	086	19	S09W05	1	0	0		11	S09W05	Q	SOLQUIET
						S07E05	2	0	0			S09E05	Q	MAGALERT MINOR 11/12
						S06E36	2	0	0			S06E36	Q	
						N08E64	0	0	0			N08E64	Q	
224	12	11	121	092	11	S09W16	0	0	0		12	S09W16	Q	SOLQUIET
						S06W08	0	0	0			S06W08	Q	MAGNIL
						S17E10	0	0	0			S17E10	Q	
						S06E18	0	0	0			S06E18	Q	
						N08E48	0	0	0			N08E48	Q	
						N08E37	1	0	0			N08E37	Q	
						S19E24	0	0	0			S19E24	Q	
225	13	12	150	097	05	S09W32	0	0	0		13	S09W32	Q	SOLQUIET
						S06W20	1	0	0			S06W20	Q	MAGQUIET
						S17W01	0	0	0			S17W01	Q	
						S06E04	0	0	0			S06W04	Q	
						N08E35	0	0	0			N08E35	Q	
						N09E23	0	0	0			N09E23	Q	
						S18E08	0	0	0			S18E08	Q	
						N05W32	0	0	0			N05W32	Q	
						S19W07	0	0	0			S19W07	Q	
226	14	13	149	093	07	S10W46	1	0	0		14	ALL		SOLQUIET
						S08W34	0	0	0			GROUPS	Q	MAGQUIET
						S07W09	0	0	0					
						N08E21	0	0	0					
						N08E12	0	0	0					
						S20W04	0	0	0					
						S20W15	0	0	0					
						S15E79	0	0	0					
						N06W20	0	0	0					
227	15	14	126	091	05	S09W58	0	0	0		15	ALL		SOLQUIET
						S08W48	0	0	0			REGIONS	Q	MAGQUIET
						S07W21	2	0	0					
						N09E07	0	0	0					
						N09W02	0	0	0					
						S19W15	0	0	0					
						S12E61	0	0	0					
						S11W37	0	0	0					

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1974

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10cm solar flux	A index	Active Regions: Location Lat-Long	Active Regions: No. of Flares Total	Active Regions: No. of Flares M	Active Regions: No. of Flares X	Outstanding events	Forecasts: Date	Forecasts: Location Lat-Long	Forecasts: Desc*	Alert Situations
228	16	15	111	090	04	S09W75	0	0	0		16	ALL		SOLQUIET
						S07W64	0	0	0			REGIONS	Q	MAGQUIET
						S05W37	0	0	0					
						N09W07	0	0	0					
						N09W19	1	0	0					
						S18W32	0	0	0					
						S13E49	0	0	0					
						S10W52	0	0	0					
229	17	16	112	094	09	S09W90	0	0	0		17	ALL		SOLQUIET
						S08W77	0	0	0			REGIONS	Q	MAGALERT 19/XX
						S05W49	1	0	0					
						N10W20	0	0	0					
						N09W33	3	0	0					
						S17W47	2	0	0					
						S13E35	0	0	0					
230	18	17	065	096	06	S03W62	3	0	0		18	ALL		SOLQUIET
						N10W46	1	0	0			REGIONS	Q	MAGALERT 19/XX
						S16W59	1	0	0					
						S12E24	0	0	0					
231	19	18	056	094	08	S03W77	1	0	0		19	ALL		SOLQUIET
						N10W60	4	0	0			REGIONS	Q	MAGALERT 19/23
						S17W71	1	0	0					
						S14E11	0	0	0					
232	20	19	058	087	28	S04W90	1	0	0	A MINOR GEOMAGNETIC	20	ALL		SOLQUIET
						N10W74	0	0	0	DISTURBANCE STARTED		REGIONS	Q	MAGALERT 20/23
						S17W74	0	0	0	GRADUALLY 19/21XX				
						S14W03	0	0	0					
						S02E71	0	0	0					
233	21	20	044	081	37	N09W90	0	0	0	MINOR GEOMAGNETIC	21	ALL		SOLQUIET
						S14W15	0	0	0	STORM CONTINUES		GROUPS	Q	MAGALERT 21/23
						N02E58	0	0	0					
						S12W17	0	0	0					
234	22	21	050	081	30	S14W29	3	0	0	MINOR GEOMAGNETIC	22	S12W33	C	SOLQUIET
						N02E45	1	0	0	STORM CONTINUES		O. G.	Q	MAGALERT 22/23
						S12W33	5	0	0					
235	23	22	052	079	32	S15W42	0	0	0	MINOR GEOMAGNETIC	23	S12W47	C	SOLQUIET
						N02E32	1	0	0	STORM CONTINUES		O.G.	Q	MAGALERT 23/23
						S12W47	8	0	0					
236	24	23	052	079	32	S15W55	0	0	0	MINOR GEOMAGNETIC	24	S15W55	Q	SOLQUIET
						N02E18	0	0	0	STORM CONTINUES		N02E18	Q	MAGALERT 24
						S11W60	3	0	0			S11W60	Q	
237	25	24	046	076	23	S15W68	0	0	0	MINOR GEOMAGNETIC	25	S15W68	Q	SOLQUIET
						N01E05	1	0	0	STORM IS ENDING		N01E05	Q	MAGNIL
						S11W73	1	0	0			S11W73	Q	
238	26	25	040	074	15	S15W79	0	0	0		26	S15W79	Q	SOLQUIET
						N02W06	0	0	0			N02W06	Q	MAGQUIET
						S12W86	0	0	0			S12W86	Q	
239	27	26	011	072	06	N01W21	0	0	0		27	N01W21	Q	SOLQUIET MAGQUIET
240	28	27	011	071	17	N01W34	1	0	0		28	N01W34	Q	SOLQUIET MAGQUIET
241	29	28	011	070	10	N01W47	1	0	0		29	N01W47	Q	SOLQUIET MAGALERT MINOR RECURRENCE 29/05
242	30	29	025	071	25	N02W60	0	0	0	MINOR RECURRENT	30	ALL		SOLQUIET
						N08W32	0	0	0	MAGSTORM BEGAN		GROUPS	Q	MAGALERT MINOR 30/05
										GRADUALLY 29/0330Z				
243	31	30	034	073	15	N01W75	0	0	0	MINOR GEOMAGNETIC	31	N01W75	Q	SOLQUIET
						S06W35	0	0	0	DISTURBANCE CON-		S06W35	Q	MAGALERT 31/05
						S12E67	0	0	0	TINUES		S12E67	Q	
244	01	31	022	074	12	N01W88	0	0	0	MINOR GEOMAGNETIC	01	N01W88	Q	SOLQUIET
						S09E75	0	0	0	DISTURBANCE CON-		S09E75	Q	MAGALERT 01/05 MINOR
										TINUES				

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

	1973 FINAL				1974 PROVISIONAL							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	89	68	31	46	19	13	25	26	48	38	82	37
2	124	66	33	24	15	12	16	20	70	49	97	23
3	130	52	23	24	13	8	15	19	89	55	96	12
4	121	50	20	0	12	7	17	22	103	80	99	17
5	108	44	7	0	9	0	18	21	106	62	107	18
6	84	38	0	0	0	0	19	23	113	79	111	26
7	77	30	0	0	0	8	20	28	109	70	88	32
8	72	22	6	7	29	16	16	38	106	59	63	34
9	75	23	0	9	36	22	20	58	91	64	42	45
10	58	8	0	16	44	21	30	70	69	61	29	51
11	42	0	7	9	43	21	37	75	64	58	22	50
12	22	0	0	9	60	36	38	78	56	38	27	67
13	0	5	9	8	45	50	30	83	40	48	28	69
14	0	10	11	8	74	26	42	87	35	45	46	66
15	13	16	12	17	77	46	37	98	24	34	65	59
16	26	18	13	26	64	48	23	93	16	25	74	57
17	20	19	16	43	65	47	20	75	8	24	65	52
18	16	15	16	43	52	46	32	64	0	29	59	44
19	8	0	22	41	54	45	20	51	0	32	45	43
20	30	0	16	47	49	43	9	49	0	21	50	32
21	39	0	23	51	37	37	16	43	0	20	55	29
22	48	16	29	51	36	45	31	28	7	11	61	34
23	58	28	39	47	29	35	27	17	9	11	64	34
24	63	36	38	51	16	29	21	19	7	16	62	29
25	74	53	46	53	0	17	15	20	0	15	61	25
26	78	59	62	57	8	20	10	20	20	8	67	8
27	78	53	60	26	0	42	9	38	18	8	60	9
28	80	62	61	12	8	35	17	30	32	13	61	9
29	75	65	64	0	7		19	22	20	30	42	14
30	71	55	59	0	0		25	16	0	52	41	8
31		37		0	0		26		52		38	15
MEAN	59.3	30.7	23.9	23.3	29.3	27.7	22.7	44.4	42.3	38.7	61.5	33.7

1973 yearly mean = 38.0

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1973				1974							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	114.9	109.0	87.0	86.9	71.5	71.8	76.4	72.1	98.5	97.9	135.4*	85.1
2	129.2*	106.1	83.9	86.3	73.2	73.1	76.5	71.3	113.1	100.1	112.7*	85.2
3	136.5	103.5	81.1	82.7	73.3	73.1	77.1	71.6	115.5	98.9	118.5*	83.0
4	135.0*	94.9	77.4	78.6	72.5	72.9	79.0	73.3	118.0	98.2	127.8*	85.8
5	135.1*	90.6*	73.9	75.6	72.1	74.0	78.6	76.3	119.7	96.5	125.6*	96.5
6	130.4	85.9	73.2	70.9	74.7	75.4	77.5	80.0	123.0	95.0*	121.5	88.0
7	121.7*	82.2	72.1	70.4	76.0	77.4	76.0	80.2	119.3	92.8	110.9*	85.8
8	115.7	80.1	71.4	70.9	79.7	78.8	77.0	81.1	115.8	95.0*	104.7*	99.4
9	113.1*	79.1	70.4	71.2	84.9	80.8	80.2	87.8	110.0	95.1	95.5	87.5
10	106.7*	77.0	70.7	72.3*	89.2	80.5	86.1	93.5*	105.1	97.0	98.2	88.3
11	96.8	74.9	71.2	71.9	91.0*	77.5	85.9	99.8	104.3	95.3*	93.1	94.4
12	89.5	72.0	70.7	72.5	94.6	76.5	86.2	105.6*	97.1	91.7	93.3	99.4
13	84.6	70.5	72.6	73.1	94.8*	77.3	84.5	102.8	93.5	89.8	93.3	95.2
14	82.9	72.7	73.8	73.8	98.7	76.3	81.9	116.3	98.2	88.1	93.3	93.2
15	82.6	75.7	75.0	76.6	91.8	83.7	82.9	122.9*	94.9	84.7	95.5	92.1
16	83.9	75.6	75.6	79.7	90.0	84.7	81.8	115.0*	80.3	86.2	91.3	96.6
17	81.8	79.5	75.3	82.1	89.2	85.9	82.7	101.8	75.8	87.2	91.0	98.8
18	84.6	78.3	75.5	84.9	87.1	87.5	80.2	98.0	75.2	84.4	96.5	95.1*
19	86.6	76.7	75.4	87.8	85.8	82.7	80.0	87.5*	73.0	82.8	97.1	88.8
20	92.0	73.4	76.8	89.9	84.4	82.2	79.6	82.3	72.5	83.8	96.7	82.6
21	94.9	80.0	80.7	97.6	79.7	82.2	79.1	79.5	71.9	81.4	90.1	81.2*
22	99.5	85.0	84.7	96.7*	83.5*	82.2	80.0	75.3	72.2	82.3	95.3*	80.6
23	103.9	89.9	86.5	96.0	81.0	84.2	79.8	73.9	71.5	80.2	98.5	81.0
24	106.2	97.6*	87.0	98.1	77.8	80.9	76.6	75.0	72.4	79.1	92.1*	77.4
25	112.7	101.0	88.6*	97.6	74.1	78.6	74.3	76.5	72.4	78.8	89.5	75.7
26	115.5	101.0	91.8*	92.9	71.5	76.2	72.6	74.9	79.6	79.6	93.1	73.8
27	115.9	101.7*	88.8	88.6	70.7	76.4	71.8	75.3	85.1	82.4	97.9	72.7
28	118.1	100.7	94.7	81.7*	70.8	75.8	70.4	77.9	87.4	83.0	94.5	71.8
29	116.5	99.1	94.5	76.4	70.7		71.5	81.6	89.4	89.4*	95.2	72.4
30	116.5*	97.4*	95.7*	74.1	70.8		72.1	91.7	91.3	93.1*	95.9	74.2
31		90.5		72.0	71.3		72.9		95.1		97.4	75.6
MEAN	106.8	87.1	79.7	81.5	80.4	78.9	78.4	86.7	92.6	89.0	95.5	85.1

* adjusted for burst

DAILY SOLAR

AUGUST

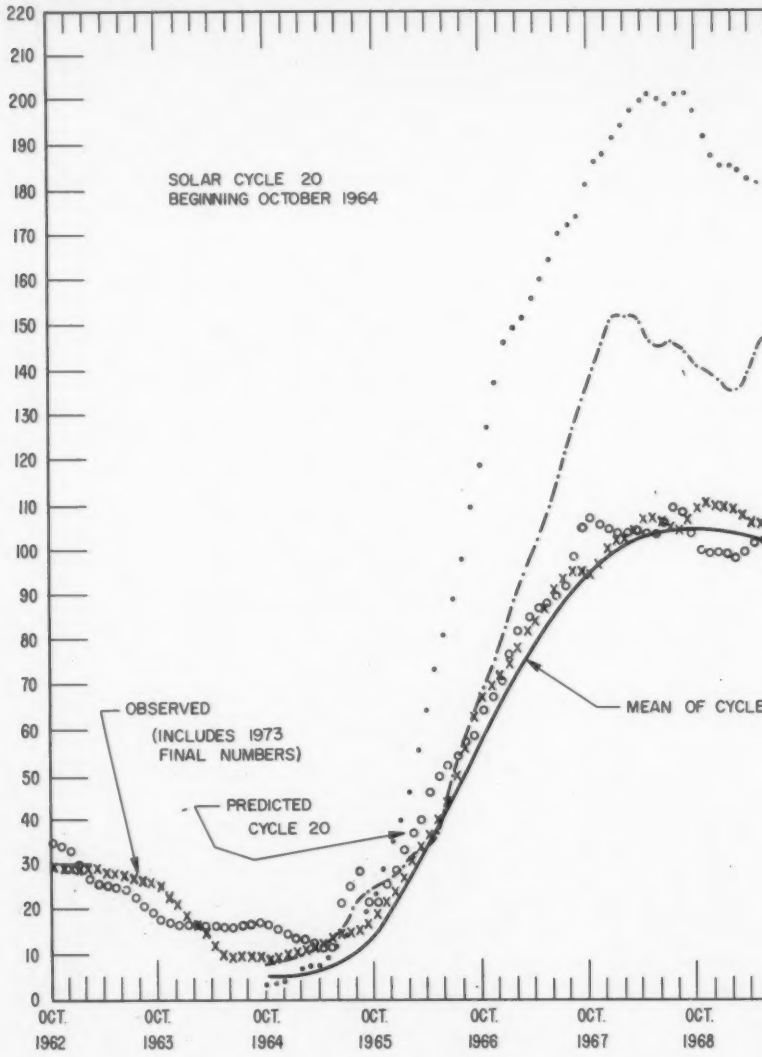
AUG 1974	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX		
			R_Z	R_{A^*}	OTTAWA 2800	AFCRL 15400	AFCRL 8800
1	213	11	37	28	82.6	522	275
2	214	12	23	20	82.7	517	276
3	215	13	12	11	80.6	531	272
4	216	14	17	10	83.4	532	276
5	217	15	18	19	84.1	521	276
6	218	16	26	25	85.5	513	278
7	219	17	32	30	83.5	503	278
8	220	18	34	33	87.0	515	283
9	221	19	45	40	85.1	514	277
10	222	20	51	44	86.0	510	279
11	223	21	50	55	91.9	521	286
12	224	22	67	69	96.8	513	292
13	225	23	69	67	92.8	521	286
14	226	24	66	65	90.8	508	281
15	227	25	59	58	89.8	526	285
16	228	26	57	58	94.2	521	292
17	229	27	52	51	86.4	524	289
18	230	1	44	46	92.8*	525	284
19	231	2	43	40	86.7	520	285
20	232	3	32	29	80.7	530	279
21	233	4	28	31	79.4*	519	269
22	234	5	34	35	78.8	512	273
23	235	6	34	34	79.3	518	270
24	236	7	28	31	75.7	514	265
25	237	8	25	24	74.1	516	272
26	238	9	8	10	72.3	509	267
27	239	10	8	9	71.2	515	264
28	240	11	8	9	70.4	522	261
29	241	12	14	10	71.0	509	259
30	242	13	8	8	72.8	516	256
31	243	14	15	14	74.2	512	267
MEAN			33.7	32.7	83.0	518	276

* Corrected for burst.

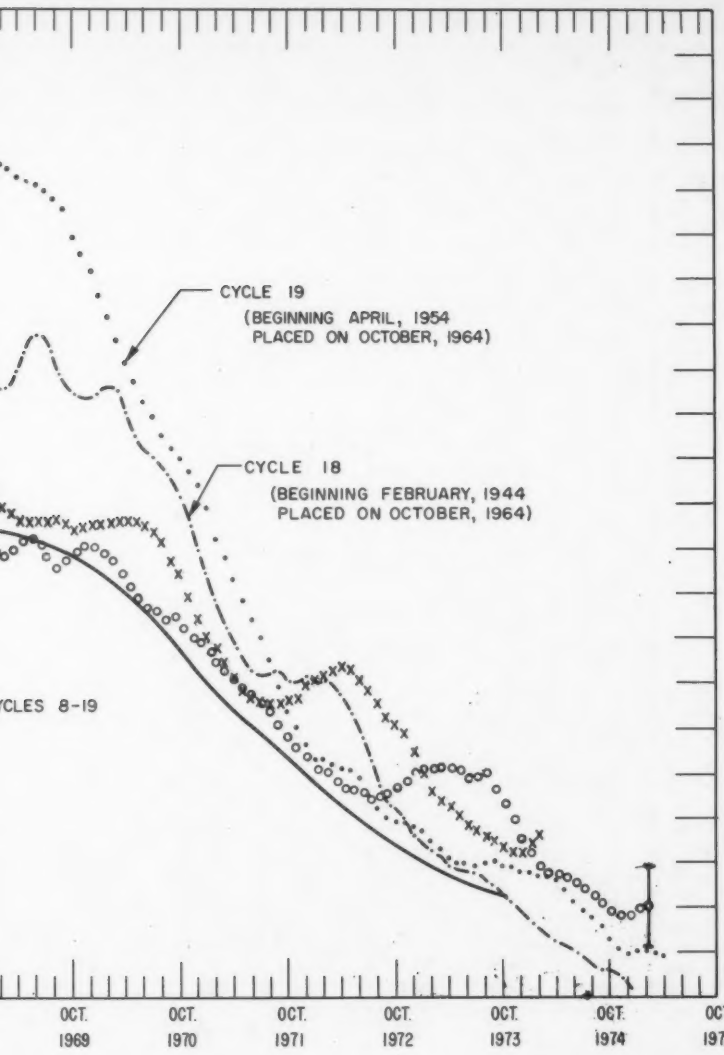
AR INDICES

ST 1974

SOLAR FLUX ADJUSTED TO 1 A.U.						
AFCRL 4995	OTTAWA 2800	AFCRL 2695	AFCRL 1415	AFCRL 606	AFCRL 410	AFCRL 245
127	85.1	81.4	56.7	41.5	21.2	9.4
126	85.2	81.0	54.5	40.0	21.7	9.4
123	83.0	79.7	52.9	37.9	20.6	9.4
129	85.8	82.7	53.5	39.0	20.7	9.6
128	86.5	81.2	52.0	38.2	22.1	9.4
128	88.0	84.0	55.0	41.4	22.8	9.4
127	85.8	82.7	55.7	39.9	22.5	10.2
129	89.4	85.1	56.2	40.7	21.8	11.3
128	87.5	83.9	59.0	41.0	22.6	10.6
130	88.3	85.9	58.9	40.1	21.6	10.0
137	94.4	90.0	60.3	41.9	24.4	11.1
139	99.4	95.0	62.1	44.3	26.9	22.2
136	95.2	91.5	61.2	44.3	24.0	9.7
133	93.2	87.7	58.3	43.1	23.3	9.0
132	92.1	87.0	60.0	43.4	25.1	9.2
137	96.6	91.9	61.7	41.5	21.8	8.9
138	98.8	95.2	62.7	45.6	26.7	10.7
139	95.1*	91.1	60.4	44.7	25.0	10.8
130	88.8	83.7	55.5	42.1	26.2	11.1
125	82.6	79.2	51.7	39.5	24.6	10.4
126	81.2*	79.2	52.7	42.4	26.1	10.1
124	80.6	76.5	51.2	38.5	25.9	10.3
124	81.0	78.0	52.3	38.9	23.7	9.4
123	77.4	74.3	48.9	38.1	23.3	8.6
118	75.7	72.4	48.0	37.8	24.7	8.6
117	73.8	70.0	46.0	37.2	24.0	8.5
117	72.7	70.3	47.4	37.7	22.8	8.6
116	71.8	68.8	48.8	36.8	25.9	9.8
112	72.4	64.2	48.2	37.6	23.6	9.6
117	74.2	69.2	47.7	36.2	22.4	9.1
120	75.6	72.0	47.8	37.8	23.0	9.5
127	85.1	81.1	54.4	40.3	23.6	10.1



PREDICTED AND OBSERVE



RVED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 20

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1964										9.6	10.2	11.0
1965	11.7	12.0	12.5	13.6	14.6	15.0	15.5	16.4	17.4	19.7	22.3	24.5
1966	27.7	31.3	34.5	37.4	40.7	44.6	50.3	56.6	63.1	67.6	70.2	72.7
1967	75.0	76.8	82.2	84.6	87.4	91.3	94.1	95.3	95.3	95.0	97.1	100.6
1968	102.6	102.9	104.7	107.2	107.6	106.6	105.2	104.8	107.0	109.9	110.6	110.1
1969	110.0	109.6	108.0	106.4	106.2	106.1	105.8	106.4	105.4	104.1	104.6	104.9
1970	105.6	106.0	106.2	106.1	105.8	105.3	103.8	101.0	97.2	93.9	89.4	84.1
1971	80.4	77.8	74.4	70.9	68.1	66.7	65.4	64.6	65.8	66.2	66.8	69.4
1972	70.8	71.2	72.4	73.4	72.9	70.5	68.2	65.5	62.2	60.6	58.7	55.1
1973	50.9	46.5	44.2	42.7	40.7	39.1	37.6	36.3	34.7	33.2	32.7	32.6
1974	34.2	36.1	35.4 (1)	34.7 (2)	34.3 (3)	33.2 (5)	31.7 (6)	29.7 (6)	27.5 (7)	25.7 (8)	24.0 (9)	22.7 (9)
1975	21.5 (9)	20.1 (9)	19.0 (9)	17.9 (9)	16.7 (9)	15.7 (10)	14.9 (12)					

For each month, the upper figure is the observed or predicted Zürich smoothed sunspot number. The lower figure in parenthesis is the corresponding absolute value of the 90% prediction interval, an indication of the uncertainty above and below the predicted number. Observed numbers are those with no prediction intervals. The observed smoothed sunspot numbers are based on final Zürich numbers through 1973.

The predicted sunspot numbers are derived from a regression analysis based on cycles 8 through 19. Tests indicate that earlier cycles are from a different statistical population. From July 1968 - February 1970 a regression analysis based on cycles 1 through 19 was used because it had not then been proven that two populations exist.

SOLAR FLARES

PARTIAL LISTING

Solar Flares for which at least one observatory has assigned a numerical importance of "1" or greater.

AUGUST 1974

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE AUG	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mi. Deg.	CORR. AREA Mi. Deg.	MAX. WIDTH Hα	MAX. INT. %	
PALE	01	2011	2138	2021	S 8	W38	.635	13095	29.0	87	1B	2	C		2.25				DE U
BOUL	01	2023E	2125D	2026	S 9	W38	.639		29.0	62D	1N		C	2026	2.46	3.12			
MITK	06	0519	0531D	0523	S 7	E69	.938	13124	11.4	12D	1N		C	0523	82.50				E
ARCE	16	0804E	0905D		N09	W23	.395	13141	14.6	61D	1N		P	0804	1.96	2.20			HK
UPIC	16	0810U	0825	0816U	N09	W25	.426		14.5	15U	SN		P	0816	.42				
UPIC	17	1220E	1300	1235	S19	W53	.841	13147	13.5	40D	1N		P	1235	1.26				
TEHR	21	1258	1334	1305	S10	W22	.446		19.9	36	SN	2	C		.55				F
MCMA	21	1302	1335	1307	S12	W26	.513	13175	19.6	33	SF		C	1307	.52	.60			E
BOUL	21	1303	1342	1312	S12	W26	.513		19.6	39	SF		C	1312	.86	.95			
WEND	21	1315	1342		S11	W28	.531		19.5	27	1F		V		3.09				

Note: Catania and Capri-S express Maximum Intensities in percent of the local undisturbed chromosphere instead of percent of the local continuum. Parentheses are used to indicate this difference.

"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by a high speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H and K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked assymetry in Hα line suggests ejection of high velocity material.
S = Brightness follows disappearance of filament (same position).
T = Region active all day.
U = Two bright branches, parallel (||) or converging (Y).
V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

SOLAR FLARES

Date, time (UT) and coordinates of Subflares not included in preceding table.

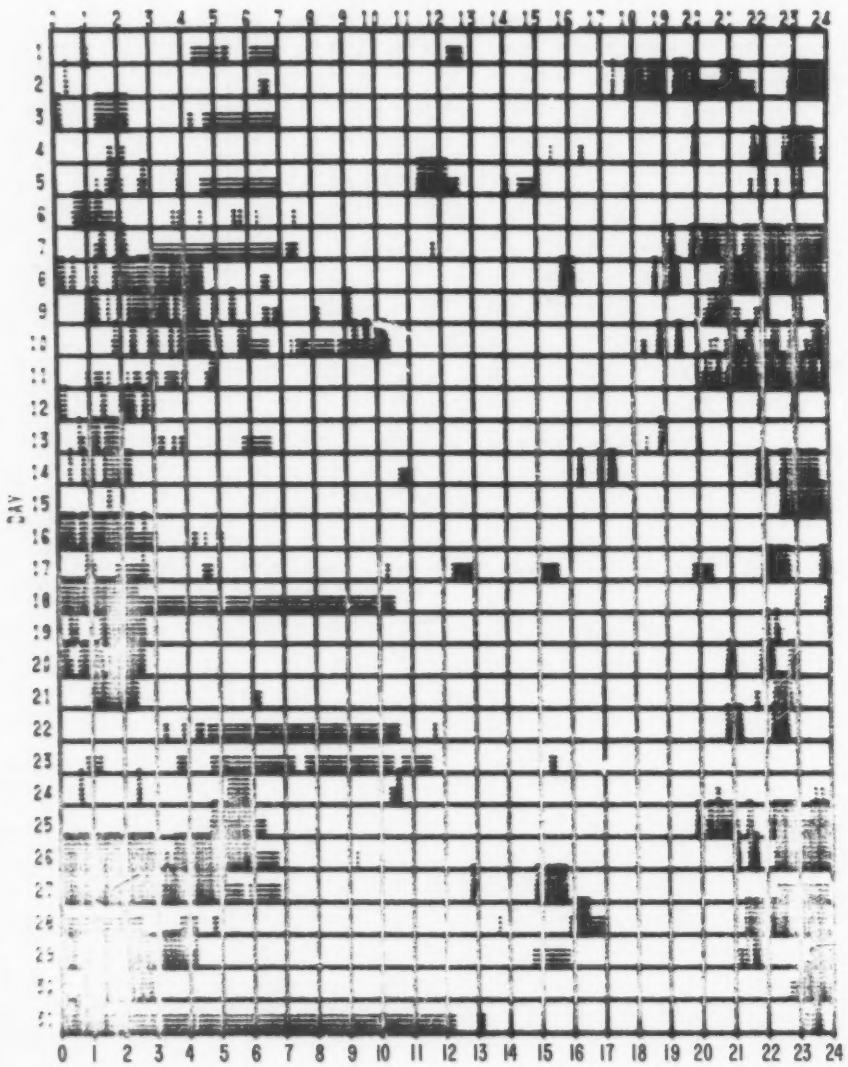
AUGUST 1974

01 0012 S 6 W67	01 0830 S08 W38	01 1602 S14 W68	01 1619 S10 W75	01 2243E S 8 W44	01 2245E S10 W45
02 0011 S11 W34	02 0014E S16 W29	02 0625 S 9 W47	02 0945 S09 W53	02 0951 S10 W50	02 0955 S 9 W46
03 0220 S 5 W83	03 1133 S 5 W85	03 1705 S10 W70	03 1755E S 9 W70	03 1800 S10 W69	03 1918 S12 W74
03 2019 S11 W70	03 2117E S 9 W70	04 0248E S 8 W75	04 0645 S 9 W80	04 0905U S09 W85	04 0955 S09 W86
04 1239 S10 W90	04 1240E S20 W90	04 1355 S10 W89	04 1448E S10 W90	05 0043E S 8 E90	05 0701 S07 E87
05 0715 S09 W90	05 0803 S09 W90	05 0936 S09 W90	05 0949 S09 W90	05 1043 S19 E90	06 0004 S 6 E69
06 0917 S13 E55	06 0920E S14 E57	06 0924 S11 E90	06 1929 S17 E73	06 1932 S16 E76	06 1933E S19 E78
06 1933 S19 E80	07 0024 S13 E80	07 0536 S11 E56	07 1211 S07 E55	07 1353 S07 E53	07 1353 S 7 E52
07 1353 S 6 E54	07 1353 S 7 E55	07 1734 S 7 E38	07 1737 S08 E38	07 1739E S09 E37	08 0717 S20 E58
08 0720E S16 E60	08 1551 S09 E24	08 1734 S 5 E54	08 1734 S 6 E55	08 1735E S07 E57	09 0751 S 8 E17
09 0755 S 9 E16	09 0837 S 6 E17	09 0841E S 7 E14	09 0933E S05 E42	09 0940 S 6 E44	09 0943E S05 E45
09 1025 S12 E16	09 1928 S11 E 8	09 1930 S11 E 9	09 2338 S 7 E36	09 2341E S 6 E36	09 2346 S 7 E36
10 0850E S09 E41	10 1307 S11 W 2	10 1310 S10 W 2	10 1448 N 7 E68	10 1746 S 4 E 8	10 1749 S 5 E 8
10 1751E S 6 E 8	10 2033E S 7 E35	10 2332E S 7 E24	11 1210 S 6 E27	11 1244 S 7 W 2	11 1443 N08 E58
12 0102 S 5 E 8	12 0104 S 6 E 7	12 0931E S07 E16	12 1031E S18 E17	13 0800E S02 W10	13 1518 S04 W07
13 1607 S 7 W12	13 1611 S05 W12	13 2321E S 8 W44	14 0238E S 4 W 9	14 0239E S 4 W14	14 1305 S06 W15
14 1305 S 6 W14	14 1731E S06 W17	15 1121E S04 W29	15 1234 N 9 W 3	15 1412 S 3 W18	15 1849 N 9 W14
15 2053E S13 E20	16 0522 N10 W19	16 0742E S18 W52	16 0757E S12 E15	16 1020U S11 E45	16 1100 S12 E46
16 1114 S12 E44	16 1214E N08 W27	16 1231E S20 W53	16 1305E N10 W17	16 1305E N10 W15	16 1342E N 8 W32
16 1342 N 7 W33	16 1355 N08 W28	16 1415E N08 W30	16 1418 N 9 W28	16 1445 N08 W29	16 1520 N 7 W22
16 1621 S16 W44	16 1621 S17 W45	16 1902 N 9 W26	16 1947 S17 W43	16 1954 S17 W44	16 2019E N11 W29
16 2019 N10 W28	16 2020 S16 W44	16 2110 S17 W44	16 2111E S17 W45	16 2200 S 7 W49	16 2202E S 5 W50
17 0257E S 5 W33	17 0433E S 4 W53	17 0436E S 4 W53	17 0437E S11 E 1	17 0800E S18 W50	17 0833 N 7 W36
17 0834 N09 W35	17 1018E S11 E31	17 1157 N 7 W37	17 1333 S15 E39	17 1430 S 5 W59	17 1711E S12 W83
17 1715 S18 W58	17 1717 S18 W54	17 1824 S 6 W73	17 1827E S 6 W60	17 1827 S 6 W61	17 1934 S 3 W61
17 1952 S 4 W63	17 2003E S 3 W62	18 0441 N 9 W47	18 0459 S 7 W66	18 0904 N 9 W48	18 0943 N 9 W48
18 1111 N12 W48	18 1723 S18 W76	18 1735 S18 W78	18 2257E S16 E11	18 2302E S16 E10	19 0742 S11 E87
19 0827 S11 E85	19 1055 S 6 W85	20 0309 N11 E58	20 1838 N 3 E59	21 0352 N 4 E59	21 0617E S10 W20
21 0648 S10 W20	21 0750 S10 W20	21 0835 S10 W20	21 0835 S11 W23	21 0841E S12 W22	21 0912E N 4 E59
21 0916 N04 E59	21 0941E S12 W18	21 1017 S11 W24	21 1018 S10 W22	21 1215 N 4 E50	21 1216E N 3 E48
21 1216 N01 E49	21 1221 N01 E48	21 1613 S11 W26	21 1614 S12 W28	21 1614 S12 W27	21 1727 N01 E47
22 0431 S12 W35	22 0441E S12 W36	22 0612 S13 W38	22 0615 S12 W37	22 0615E S12 W34	22 0659 S13 W38
22 0805E S11 W33	22 0834E S11 W33	22 0956E S11 W33	22 1014E N13 E29	22 1023 S11 W33	22 1025E S13 W39
22 1037E S14 W38	22 1747 S13 W45	22 1749E S12 W45	22 1751 N 1 E37	22 1755 S12 W41	22 1940 S10 W43
22 1941 S11 W46	22 2148 S10 W46	22 2338 N 4 E36	23 0225 S13 W48	23 0340E S13 W48	23 0817E S12 W46
23 0845E S11 W51	23 2119 S10 W49	24 0314 S14 W59	24 1352 S 9 W68	24 1510 S 9 W70	24 1511 S 9 W68
24 1738 N 2 E11	24 1739 N 2 E12	24 1740 N02 E11	25 2103 S08 E14	26 1555 N 2 W18	26 1741 S19 W35

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

AUGUST 1974



Observatories included in total patrol:

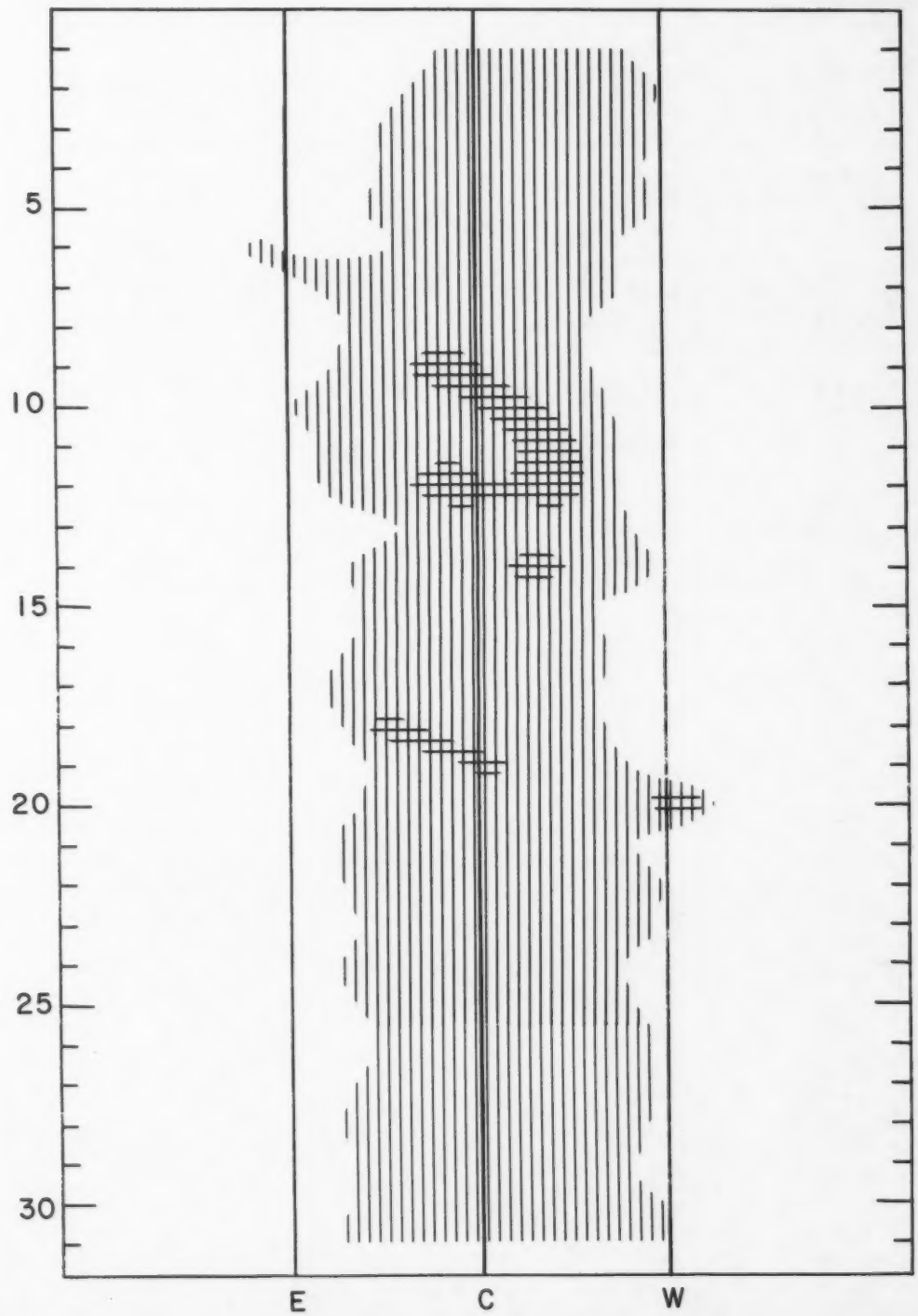
Arcetri	Herstmonceux	Mitaka	Rome	Wendelstein
Boulder	Manila	Palehua	Tehran	
Bucharest	McMath-Hulbert	Ramey	Upice	

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

AUGUST 1974

Nançay 169 MHz



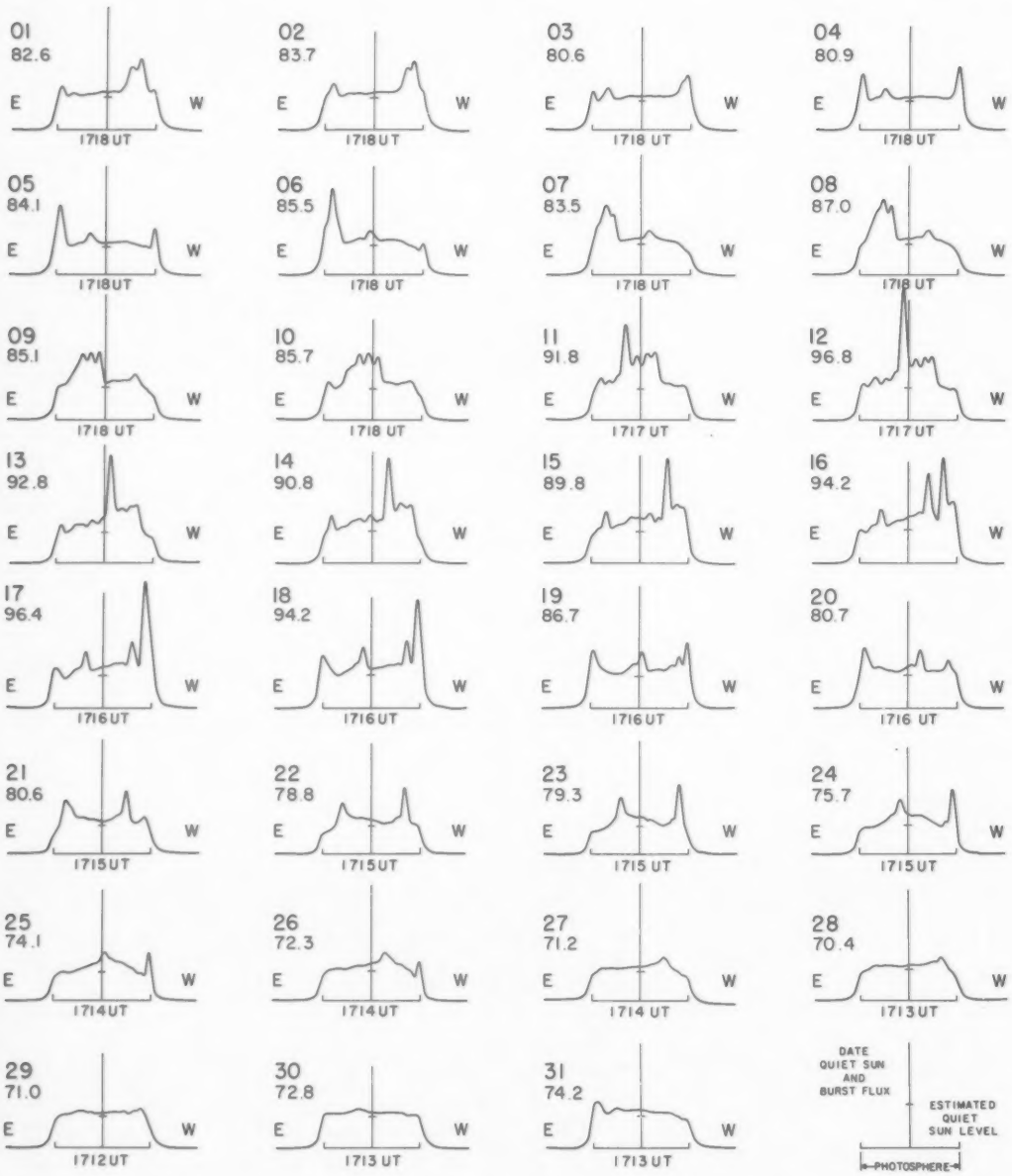
14
Aug 74

EAST - WEST SOLAR SCANS

August 1974

ALGONQUIN RADIO OBSERVATORY
CANADA

10.7 cm
Fan Beam with 1.5 minutes of arc
E - W Resolution



EAST-WEST SOLAR SCANS

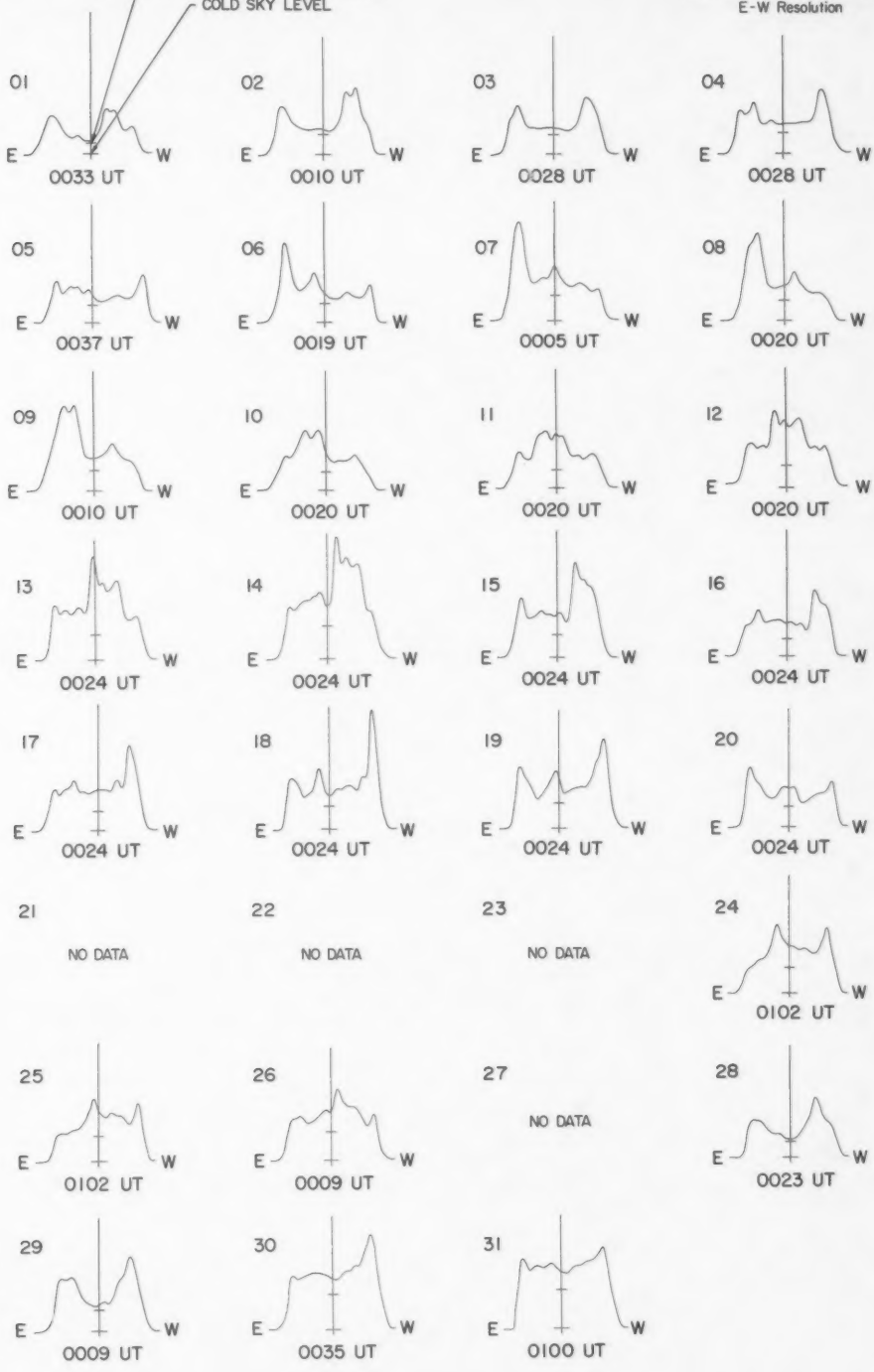
AUGUST 1974

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL

COLD SKY LEVEL

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution



16
Aug 74

EAST-WEST SOLAR SCANS

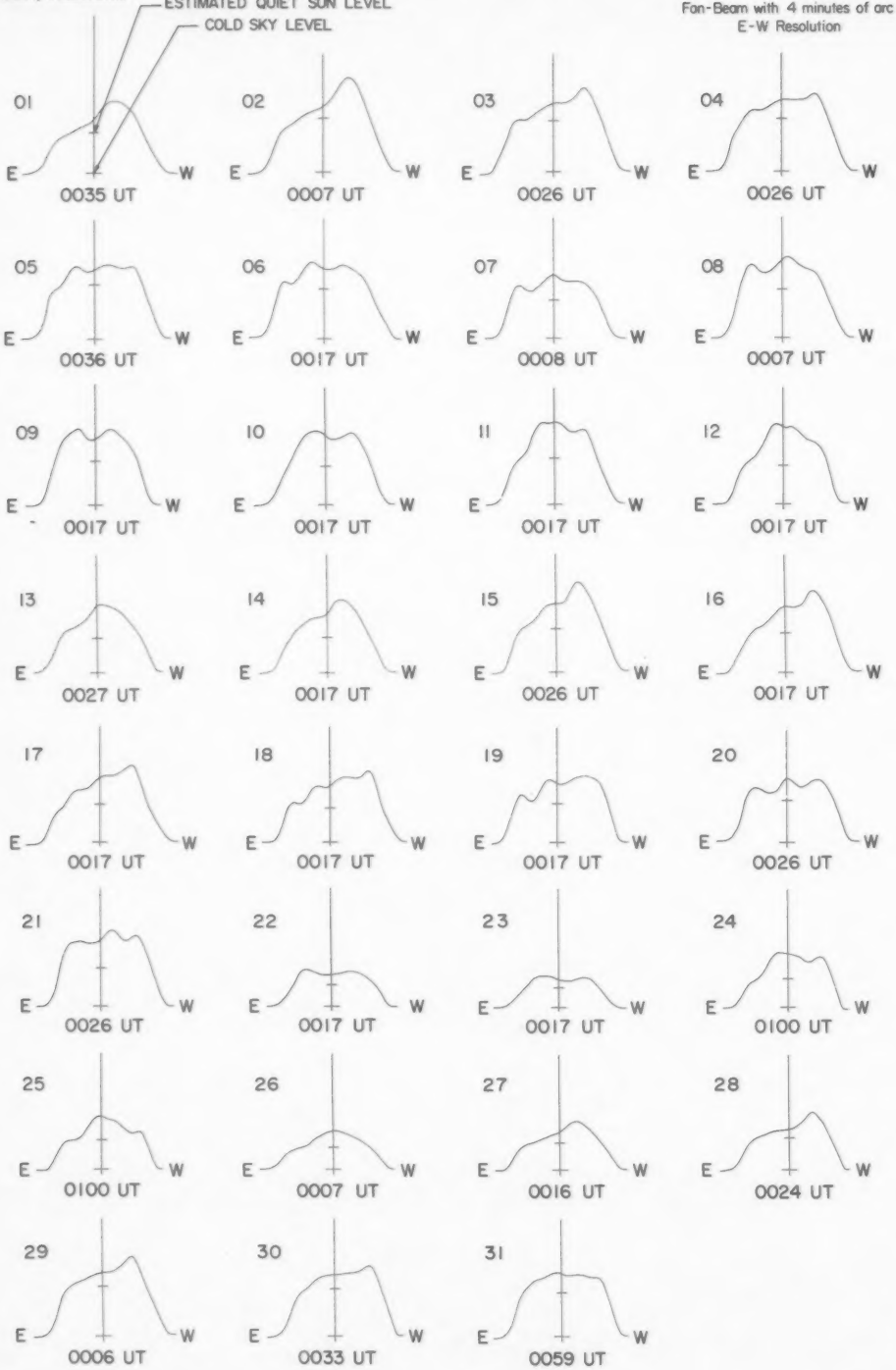
AUGUST 1974

Fleurs, Australia

ESTIMATED QUIET SUN LEVEL

COLD SKY LEVEL

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1974

AUG 1974	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{22} Wm^{-2} Hz^{-1}		INT	REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
1	2800 OTTA	24	1820	1900	40	1.2	0.6		
	2800 OTTA	24	1900		420 D	1.2			
	2800 OTTA	4	2012	2015.2	11	19.8	7.2		
	2695 BOUL	45	2012.5	2016.5	12	19.0	5.0		
	2800 OTTA	29	2023	2023	130	5.0	2.8		
	2800 OTTA	27	2240		150	1.6	1.4		
	2800 OTTA	24	2240	2250	10	1.6	0.8		
	2695 BOUL	45	2242.5	2246.5	5	6.0	2.0		
	2800 OTTA	2	2243	2245	6	4.2	2.1		
	2695 PENT	24	2250		110	1.6			
	2695 PENT	26	2440	2510	30	-1.6	-0.8		
2	2695 BOUL	3	1744	1745.5	2.5	3.0	1.0		
3	2695 PENT	24	1745	1915	90	1.8	0.9		
	2695 PENT	24	1915		220 D	1.8			
4	2595 PENT	20	1940	2145	200 D	2.4			
7	2800 OTTA	8	1847.8	1847.8		2.2			
8	2800 OTTA	27	1415 E		295 D	2.0			
	2800 OTTA	24	1415 E	1455	40 D	2.0			
	2800 OTTA	24	1455		190	2.0			
	2800 OTTA	26	1805	1910	65	-1.4	-0.7		
9	2695 PENT	24	2330	2405	35	1.6	0.8		
	2695 PENT	24	2405		110 D	1.6			
10	2800 OTTA	20	1748	1800	250	2.0	1.1		
	2695 PENT	24	2230	2435	125	4.0	2.1		
	2695 PENT	24	2435		80 D	4.0			
11	2695 PENT	24	1130	1300	90	3.4	1.7		
	2800 OTTA	24	1300		750 D	3.4			
	2800 OTTA	32	1730	1755	50	-1.0	-0.5		
12	2695 PENT	20	0050	0120	65 D	4.2			
	2800 OTTA	27	1150		490	2.4			
	2800 OTTA	24	1150	1240	50	2.4	1.2		
	2800 OTTA	24	1240		310	2.4			
	2800 OTTA	26	1800	2000	120	-1.4	-0.7		
	2800 OTTA	20	2120	2220	220	4.2	2.0		
14	2800 OTTA	20	1703	1735	35	1.2	0.6		
16	2800 OTTA	24	1427	1440	13	2.0	1.2		
	2800 OTTA	24	1440		410	2.0			
	2695 PENT	24	2130	2500	210	4.6	2.3		
	2695 PENT	24	2500		55 D	4.6			
17	2800 OTTA	26	1520	1800	160	-2.0	-1.0		
	2800 OTTA	1	1608	1609	3	5.4	2.7		
	2695 BOUL	3	1609	1610	2	6.0	2.0		
	2800 OTTA	24	1930	1940	10	2.0	1.0		
	2800 OTTA	24	1940		360 D	2.0			
	2800 OTTA	20	2200	2225	110	2.6	1.3		
18	2800 OTTA	20	1620	1750	180	2.6	1.3		
	2800 OTTA	8	2256.6	2256.6		2.0			
20	2800 OTTA	32	1510	1535	50	1.6	0.8		
21	2695 PENT	20	1300	1315	70	1.6	0.8		
	2800 OTTA	20	1610	1650	95	1.6	0.8		
22	2695 MANI	1	0446.7	0446.9	1.5	3.4	.9		
	2800 OTTA	20	1740	1810	110	2.8	1.6		
24	8800 SGMR	2	1352.8	1353.2	3.8	6.4	1.9		
	2695 PENT	4	1352	1353	2	63.0	31.5		
	2695 SGMR	4	1352	1352.8	3.5	63.0	18.9		
	2695 BOUL	8	1353	1353.5	2	66.0	28.0		
	2695 SGMR	4	1510.9	1511.3	.7	16.0	4.8		
	2800 OTTA	8	1511	1511.4	.6	20.0			
	2800 OTTA	8	1515.5		.4	2.0			
	2800 OTTA	40	1517	1517.2	1.7	4.0			
	2800 OTTA	20	1735	1745	105	3.2	1.3		
	2695 BOUL	3	1737.5	1746	25	5.0	2.0		

Observatories:

BOUL = Boulder MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

PIONEER VI

AUGUST 1974

Date Aug. 1974	DSN Coverage (UT)	Data Time (UT) †	ESP (°)	SOLAR WIND AMES[1] U_{H^+} †† (km/sec)	SOLAR WIND AMES[1] TAU (days)	SOLAR WIND MIT[2] U_{H^+} (km/sec)	SOLAR WIND MIT[2] N_{H^+} (H^+/cc)	COSMIC RAY PROTONS[3] (particles/sec) 6-13 (Mev*)	13-175 (Mev**)	>175 (Mev)
6	1522-1754	1600	-172.	756	-12.77	759	5.1	23.5	0.1	0.74
		1700		756		710	17.2	27.7	.11	.77
17	1216-1751	1300	-172.8	448	-12.69					
		1400		448						
		1500		448						
		1600		506						
		1700		506						

Data excessively noisy due to spacecraft's orbital location. With the exception of Wolfe's peak velocity, data reduction not possible.

PIONEER VII

AUGUST 1974

Date Aug. 1974	DSN Coverage (UT)	Data Time (UT) †	ESP (°)	SOLAR WIND AMES[1] U_{H^+} †† (km/sec)	SOLAR WIND AMES[1] TAU (days)	SOLAR WIND MIT[2] U_{H^+} (km/sec)	SOLAR WIND MIT[2] N_{H^+} (H^+/cc)	COSMIC RAY PROTONS[3] (particles/sec) 6-13 (Mev*)	13-175 (Mev**)	>175 (Mev)
7	1043-1600	1100	-094.8	440	-7.36			0.2	0.1	
		1200		440				.2	.11	
		1300		500				.21	.11	
		1400		500				.16	.11	
		1500		536				.18	.09	

[1] Wolfe - NASA/ARC
[2] Simpson - University of Chicago

* Includes He 0.6-13 Mev/nucleons and electrons ∿0.5 Mev - see J. Retzler and J. A. Simpson, J. Geophys. Res., 74, 9, 2149-2160, 1969 for discussion of the electron response of Pioneer VII.

** Includes He >13 Mev/nucleons.
Q Used to indicate that a rate is at its quiescent level.

Note: The notes published with the March 1972 data continue to apply to the current data.

ESP = Earth-Sun Probe Angle.

† Data instantaneous at hour indicated.
†† Peak velocity.

PIONEER VIII

AUGUST 1974

Date Aug. 1974	DSN Coverage (UT)	Data Time (UT)	ESP (°)	SOLAR WIND[1]				IP E-FIELD[2]	IMF[3]		COSMIC RAY PROTONS[4] (particles/sec)	
				U_{H^+} (km/sec)	N_{H^+} (H^+/cc)	T_{H^+} (x10^{6}°K)	TAU (days)	400 Hz (mv)	|B| (γ)	ϕ (°)	>13.9 Mev	> 64Mev
9	1523-1623	1600	133.2	455.	---	0.088	9.84	0.629	2.2	146.	--	1.26
18	1321-1918	1300	133.8	491.	---	---	9.87	.367	4.	325.	7.22	1.23
		1400		483.	---	.089		.399	5.2	353.	7.35	1.38
		1500		472.	---	---		.216	5.	331.	7.23	1.07
		1600		482.	---	---		.204	2.4	351.	7.02	1.19
		1700		472.	---	---		.208	4.5	327.	7.24	1.13
		1800		465.	---	.104		.246	5.3	322.	7.13	1.14
		1900		485.	---	.098		.391	5.3	307.	7.14	1.27

[1] Wolfe - NASA/ARC
[2] Scarfe - TRW, Inc.
[3] Ness - NASA/Goddard & Mariani - Univ. of Roma
[4] Webber - Univ. of N.H.

ESP = Earth-Sun Probe Angle.

PIONEER IX

AUGUST 1974

Date Aug. 1974	DSN Coverage (UT)	Data Time (UT)	ESP (°)	SOLAR WIND[1]				IP E-FIELD[2]	IMF[3]		COSMIC RAY PROTONS[4] (particles/sec)	
				U_{H^+} (km/sec)	N_{H^+} (H^+/cc)	T_{H^+} (x10^{6}°K)	TAU (days)	400 Hz (mv)	|B| (γ)	ϕ (°)	>13.9 Mev	>40 Mev
6	0807-1357	0800	-105.4	487.	---	0.13	-7.81	0.155	5.7	080.	5.89	1.21
		0900		480.	---	---		.155	5.	115.	5.97	1.11
		1000		490.	---	---		.148	6.2	101.	5.84	1.09
		1100		497.	---	---		.144	5.8	096.	5.79	1.43
		1200		533.	---	.106		.148	5.7	047.	5.88	1.12
		1300		492.	---	.106		.148	5.5	094.	6.01	1.16
		1400		490.	---	---		.129	6.1	126.	5.91	1.45
9	1005-1324	1000	-105.3	459.	---	.125	-7.8	.187	4.7	155.	6.05	1.13
		1100		464.	---	.16		.163	5.4	165.	5.95	1.07
		1200		464.	---	.135		.163	5.1	138.	5.84	1.26
		1300		465.	---	---		.14	5.2	116.	5.96	1.07
10	0925-1312	1000	-105.3	424.	---	---	-7.77	.148	6.5	154.	5.97	1.13
		1100		406.	---	---		.14	5.7	171.	5.95	1.07
		1200		404.	---	---		.14	6.2	140.	5.94	1.04
		1300		396.	---	---		.151	6.6	148.	6.04	1.24
17	0332-1027	0400	-105.2	664.	---	.432	-7.81	.215	6.2	343.	5.6	1.24
		0500		664.	---	.412		.164	5.1	330.	5.43	1.03
		0600		672.	---	---		.171	5.3	324.	5.45	1.3
		0700		640.	---	---		.262	7.3	335.	5.59	1.
		0800		641.	---	---		.302	6.7	326.	5.39	1.21
		0900		648.	---	---		.299	6.2	321.	5.4	1.1
		1000		662.	---	.22		.33	6.3	349.	5.42	1.3
18	0620-1217	0600	-105.2	678.	---	.239	-7.8	.187	5.3	029.	5.38	1.06
		0700		670.	---	.234		.253	4.9	320.	5.51	1.09
		0800		679.	---	.181		.224	5.1	014.	5.38	1.27
		0900		642.	---	.154		.231	5.1	358.	5.48	1.13
		1000		668.	---	---		.261	4.7	314.	5.4	1.04
		1100		645.	---	---		.287	5.3	040.	5.4	0.96
		1200		641.	---	.197		.261	4.9	330.	5.38	1.13

[1] Wolfe - NASA/ARC
[2] Scarf - TRW, Inc.
[3] Sonett and Colburn - NASA/ARC
[4] Webber - Univ. of N.H.

ESP = Earth-Sun Probe Angle.

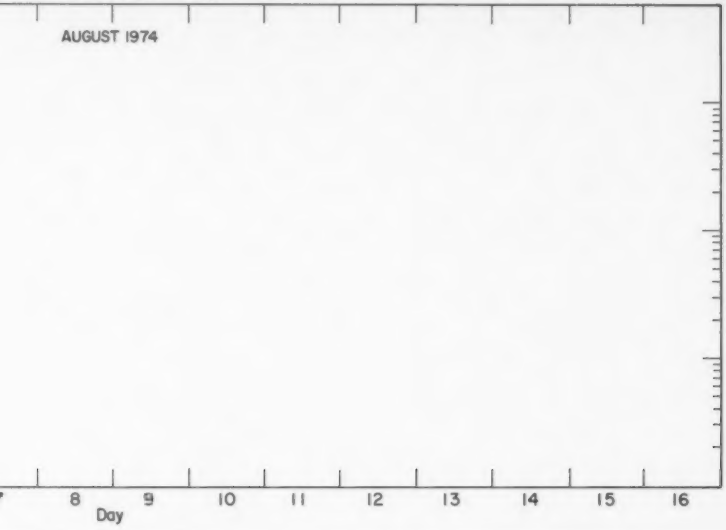
Note: Data sampled hourly unless otherwise noted.

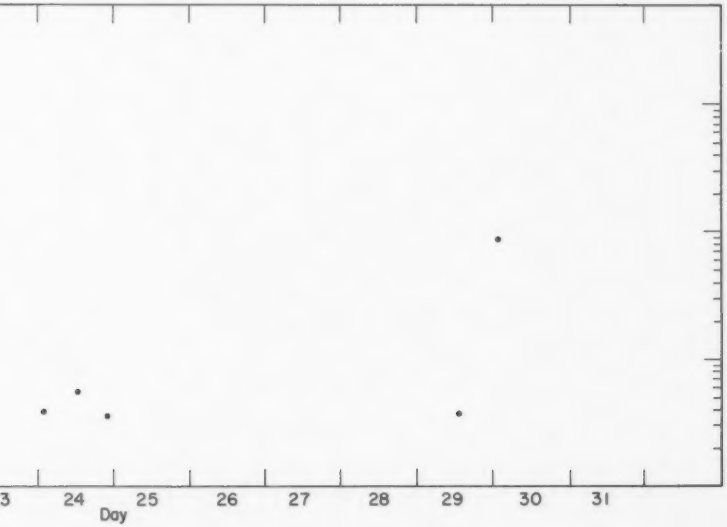
>10 Mev P

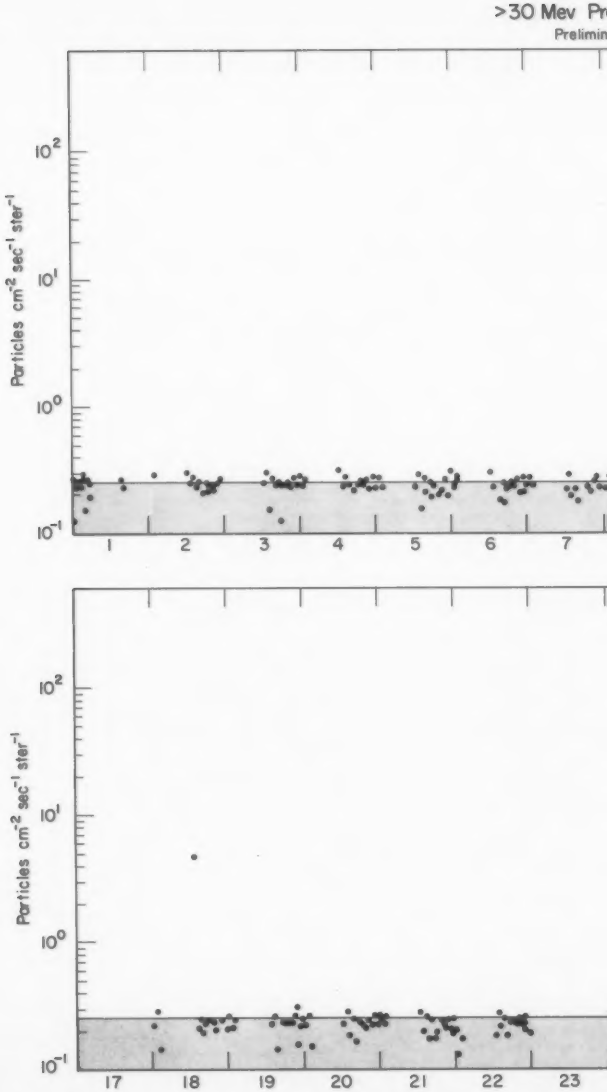
Prelim

ev Protons from NOAA 2 and 3

Preliminary Raw Data - Polar Cap

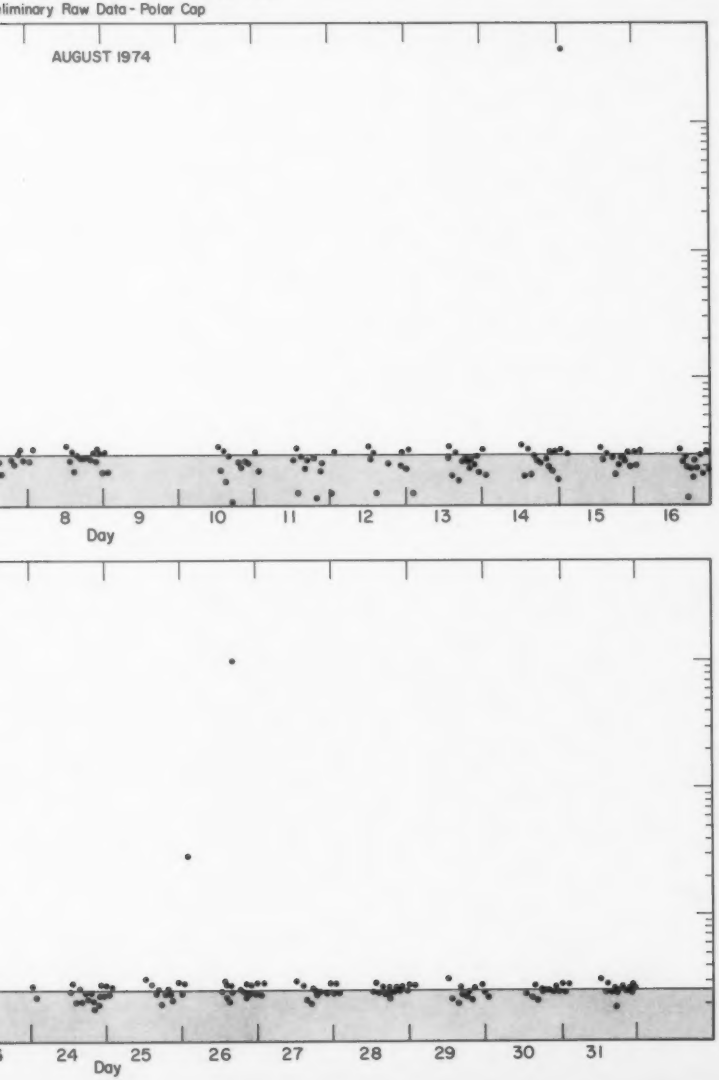





>30 Mev Pr
Prelimin
Particles cm^{-2} sec^{-1} ster^{-1}
10^2
10^1
10^0
10^{-1}
1
2
3
4
5
6
7
Particles cm^{-2} sec^{-1} ster^{-1}
10^2
10^1
10^0
10^{-1}
17
18
19
20
21
22
23

Protons from NOAA 2 and 3

liminary Raw Data - Polar Cap



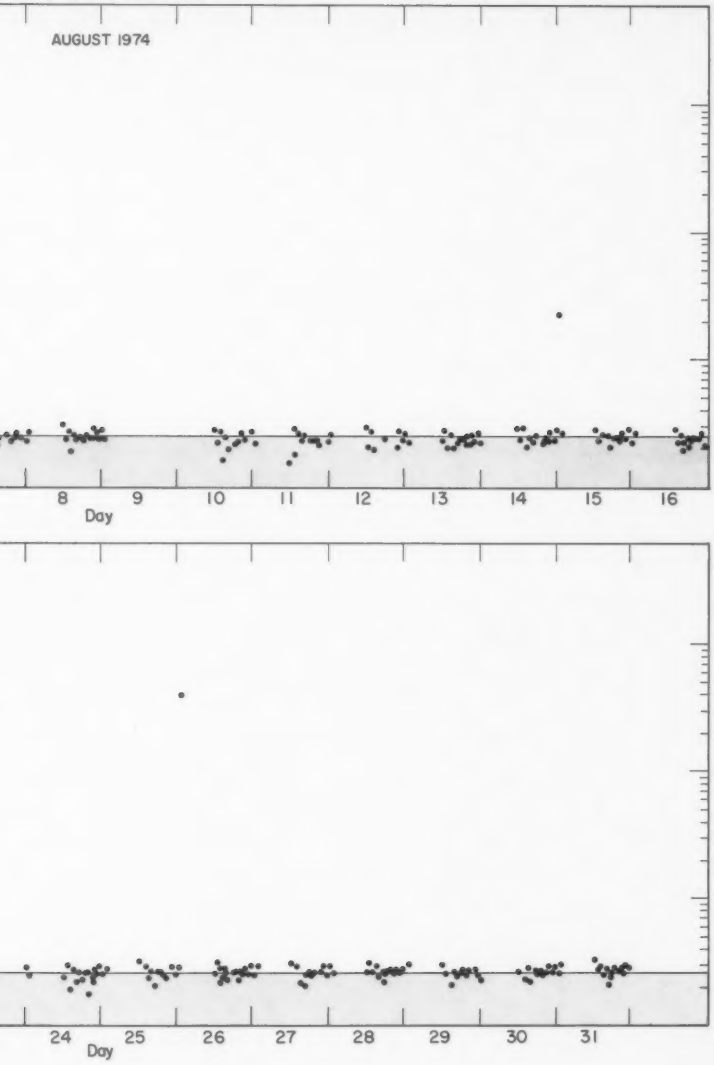
21
Aug 74

>60 Mev Pr
Prelimin

Protons from NOAA 2 and 3

liminary Raw Data - Polar Cap

22
Aug 74



INFERRED IP MAGNETIC FIELD

BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1893	1971 DEC 20	A	T	A	A	A	A	A	A	A	A	A	A	T	T	A	T	TA	T	A	T	A	-	T	T	T	TA	T	T	T	T	A	T	T	T	T	T	T	T	-	T	T	T	T	T
1894	1972 JAN 16	-	T	TA	A	A	A	T	A	A	A	A	T	T	T*	T	T	T	T	AT	T	A	T	T	T	T	T	T	T	T	T	T	A	A	T	A	AT	A	T	T	T	T	T	T	T	T	TA	T	A	A
1895	FEB 12	A	A	A	T	A	A	A	A	A	A	A	T	T	T	T	A	T	A	TA	T	A	T	-	A	A	T	T	T	T	T	T	T	T	TA	A	A	T	T	T	A	T	T	T	T	T	AT	TA	A	A	A	A
1896	MAR 10	A	A	A	A	A	A	A	A	A	A	A	A	T	A	T	A	T	A	T	A	T	A	T	T	A	A	A	T	T	T	A	T	TA	T	A	A	A	T	T	T	T	T	T	T	T	T	TA	T	A	A	A	A
1897	APR 6	A	A	T	T	T	T	A	A	AT	T	T	T	T	T	T	TA	T	T	T	T	T	T	T	T	A	A	T	T	T	T	AT	A	A	A	A	A	A	A	A	T	-	A	A	A	A	T	T	TA	T	A	A	A
1898	MAY 3	A	A	A	A	A	A	T	-	A	A	T	T	T	T	T	T	T	T	T	T	T	T	T	T	A	A	T	A	A	T	A	A	AT	A	A	A	AT	A	AT	A	T	T	A	A	T	T	T	T	A	A	T	T
1899	MAY 30	A	A	A	A	A	*	A	A	AT	A*	T	T	T	T	A	A	T	T	T	T	TA	T	A	A	A	-	A	-	TA	-	A	-	A	-	T	T	T	-	A	A	A	A	T	T	T	T	T	T	T	TA	T	A	A
1900	JUN 26	A	A	A	A	A	A	TA	A	TA	A	A	A	A	A	T	AT	TA	T	T	T	T	T	T	TA	A	A	T	T	T	T	A	A	A	T	A	T*	A	A*	T	A	A	T	T*	T	T	T	T	T	T	T	T	TA	TA
1901	JUL 23	TA	A*	TA	A*	T	A*	T	A	A	A	A	A	A	A	T	A*	TA	T	T	T	A	A	A	A	TA	A	T	-	AT	A	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	A	A	TA	-
1902	AUG 19	A	-	A	-	A	A	A	A	A	A	A	A	A	A	TA	T	A	A	A	A	A	A	A	A	T	T	A	A	A	A	A	A	T	T	T	T	T	T	T	TA	A	A	A	TA	T	A	A	A	TA	A	A	-
1903	SEP 15	A	A	TA	T*	A	A	A	A	A	A	AT	A	A	A	A	T	T	A	AT	A	A	A	A	-	A	-	A	-	A	-	A	-	A	T	T	T	T	T	T	T	T	A	-	T	T	T	A	T	A	TA	A	A	T
1904	OCT 12	T	T	A	-	TA	-	A	A*	A	T	A	T	TA	T	A	A	A	A	A	T	TA	A	TA	A	AT	A	ATA	A	A	A	T	AT	T	T	A	T	A	T*	T	T	A	-	A	A*	T	AT	T	T	TA	T	TA	*	A	A
1905	NOV 8	A	A	T	A	AT	A	AT	AT	TA	AT	T	AT	A	T	TA	T*	A	A	A	A	A	A*	TA	AT	A	A	A	A	TA	AT	T	T	A	T	TA	TA	A	T	A	T	AT	T	A	A	A	A	A	AT	AT	T	T
1906	DEC 5	T	T	T	T	TA	AT	T	-	T	-	T	T	T	T	A	AT	A	-	TA	T	TA	T	A	A	AT	-	A	-	A	T	T	TA	A	A	T	T	A	A*	A	T	T	T	T	T	T	T	TA	AT	TA	T
1907	1973 JAN 1	T	T	T	T	T	T	T	T	TA	T	T	T	A	T	AT	-	A	AT	A	T	A	-	AT	-	A	TA	A	A	A	A	A	A	A	A	A	A	A	T	T	A	-	T	-	T	T	T	-	TA	T	-	T	T	T
1908	JAN 28	T	T	A	A	T	T	TA	T	AT	T	T	T	T	T	A	T	A	A	A	A	TA	A	A	A	A	AT	T	TA	A	AT	A	TA	A	AT	AT	-	A	A	A	A	T	T	T	T	AT	T	T	T	T	T	T
1909	FEB 24	AT	T	AT	T	AT	TA	AT	T	T	T	T	-	AT	TA	AT	A	T	A	T	T	A	A	A	A	A	A	A	AT	TA	A	AT	A	A	A	AT	TA	A	A	T	A	A	AT	TA	A	A	AT	A	T	T	T	T	T	T
1910	MAR 23	T	T	T	T	T	T	T	A	T	T	T	T	T	T	T	TA	AT	A	T	T	A	A	A	A	A	A	-	A	A	A	A	T	T	A	A	A	A	A	A	A	AT	AT	T	-	T	-	T	T	A	T	T	T	T	AT	T*	T	T*
1911	APR 19	T	T	T	AT	T	T	-	A	T	T	T	AT	T	A	A	AT	T	T	T	T	T	TA	A	A	A	A	AT	A*	A	A	-	AT	A	TA	A	A*	-	T	A	A	T	TA	T	T*	-	AT	A	A	T	T	-	A	-	T	A	A*
1912	MAY 16	T	T	T	T	T	T	T	T	AT	T	-	T	-	TA	T	T	A	A	AT	AT	T	T	AT	A	A	A	-	A	A	A	-	A	A	A*	A	A	A	A	A	A	A	A	A	-	T*	A	-A	A	A	-	-	T	T	T	T
1913	JUN 12	TA	T*	-	T	*	-	T	T	TA	T*	A	A	T	T	-	T*	T	T*	T	T	T	T	AT	AT	A	A	A	A	TA	T	*	-	T	T	-	A	A	A	A	A	A	A*	A	AT	T	-	T	T	A	A	-	A	T	T
1914	JUL 9	T	T	T	T	A	A	T	T	-	T	AT	A	T	T*	A	T*	A*	-	A	A	AT	*	-	A	A	T	T	A	TA	-	T	T	T	T	T	A	A	-	A*	A	A	A	A*	A	TA	-	A	A	TA	T	T*	T	T*	T	T
1915	AUG 5	T	T	A	A	A	A	T	AT	A	A	A	A	T	T	T*	T	T	AT	*	T	AT	T	T	A	A	AT	T	T	A	A	A	TA	T	T	T	T	A	A	A	A	A	A	AT	A	A	A*	A	AT	A	A	A	A	T	TA	A	A*	A	A
1916	SEP 1	T	TA	*	T	T	T	T	A	AT	A	A	A	TA	*	A	A	A	*	T	T	T	T	T	T	T	T	A	A	A	A	A	T	T	T	T	T	T	A	T	T	T	A	A	A*	T	A	A	T	*	A	A	A	A	TA	A*	A	A
1917	SEP 28	A	A*	TA	A	T	AT	T	T	A	A	A	A	A	A	T	A	AT	A*	AT	T*	AT	AT	T	T	T	T	T	T	T*	T	T	T	T	T*	T	T*	AT	T	TA	A	A	T	-	A*	A	A	A	A	A	T	AT	A	AT	T	T	T
1918	OCT 25	T	T	T	T	A	TA	A	A	A	T	A	T*	T	A	T	A	A	A	A	A	A	T	A	TA	T	T	T	AT	T	T	T	T	T	TA	T	T	T	T	T	*	A	A	A	A	AT	A	AT	TA	A	T	A	-	A	A
1919	NOV 21	A	*	T	T	T	-	A	A	A	A	AT	T	A	T	A	T*	A	TA	A	A	A	A	A	A	T	TA	T	T	T	T	T	T	T	*	T	T	T	T	TA	TA	A	A	T	T	-	T	A	A	TA	A	A	T	T
1920	DEC 18	T	T	AT	A	A	T	A	T	A	TA	A	T	A	*	A	A	A	*	AT	T	T	T	T	T	T	T	*	T	T	T	T	T	T	A	T	AT	T	T	A	T	T	T	T	AT	TA	T	T	T	A	A	T	AT	T
1921	1974 JAN 14	T	T	A	A	T	-	T	T	A	A	T	A	A	A	A	A	A	-	A	A	-	AT	-	T	T	T	TA	T	*	T	A	T	T	T	T	T	A*	AT	T	AT	T	TA	A	T	-	T	T	T	T	T	T	T	TA	A
1922	FEB 10	A	-	A	-	A	*	A	A	A	A	A	A	A	A	TA	T	A	A	A	A	T	*	T	T	T	T	T	T	T	A	T	-	T	T	T	T	T	T	TA	T	T	T	T	T	T	T	T	T	T	A	A	A	A
1923	MAR 9	A	A	A	A	A	A	A	A	A	A	A	A	T	T	TA	TA	A	AT	A	A	A	A	T	A	T	TA	T	A	T	T	A	T	A	A	T	T	T	T	T	T	T	TA	T	T	TA	T	TA	A	TA	-	A	TA
1924	APR 5	A	A	A	A	A	-	TA	A	A	A	A	A	A	A	*	A	A	A	A	A	A	A	A	A	T	T	TA	TA	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	TA	A	AT	T	A	A	-	-	-
1925	MAY 2	-	-	A	A	A	A*	AT	T	A	AT	AT	T	A	T*	TA	A	A	A	TA	T*	A	A*	AT	AT	T	T	T	T	T	T	T	T	TA	T*	T	T	T	T	T	T	TA	-	T	T	TA	T*	T	T	A	-	-	-
1926	MAY 29	T	T	A	A	A	*	-	A	A	A	A	*	A	A	*	-	TA	*	A	A	A	A	T	T	T	T	TA	TA	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	AT	*	-	T
1927	JUN 25	TA	TA	A	A	-	A	-	A	A	T	A	A	A	A	A	A	A	A	A	-	TA	TA	-	T	T	T	T	T	T	T	T	-	T	T	-	T	T	T	T	T	T	T	T	T	A	AT	AT	T	T	T	T	T	T
1928	JUL 22	T	T	A	A	A	A	AT	A	A	A	A	A	A	A	A	A	A	A	A	A	A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1929	AUG 18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-	A	T	T	T	T	T	T	T	T	T	T																							

T = towards the sun
A = away from the sun
* = effect doubtful or not discernable
- = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field made principally from magnetograms produced by magnetometers at the Vostok Antarctic Station of the USSR for the first half of the day and from the Thule Geopole Station of the U.S. Air Weather Service for the second half.

Note: Computer problems are responsible for the considerable amount of missing data in August 1974.

JULY 1974 DATA

Contents

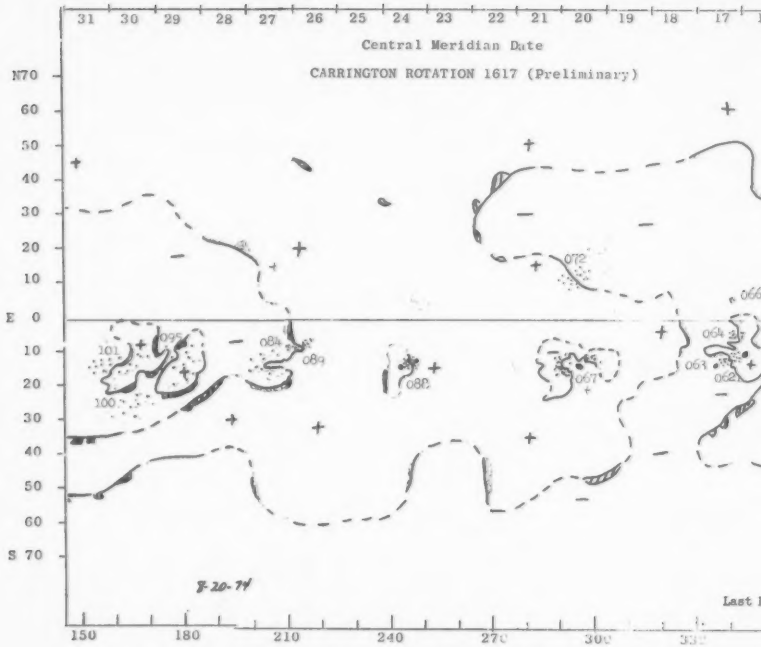
	Page
Daily Solar Activity Centers	
Hα Synoptic Chart	26
Descriptive Text for Kitt Peak Solar Magnetograms	27
Calibration of OSO-7 Fe XV 284Å Spectroheliograms	28-29
X-ray, Magnetograms, Calcium Plages, Hα Spectroheliograms, Sunspots, Corona and 2 cm Spectroheliograms	30-91
Individual Regions of Solar Activity	92-102
Daily Calcium Indices	102
Sudden Ionospheric Disturbances	
Table of Events	103-105
Number of Events in each Plage Region	105
Solar Radio Waves	
Spectral Observations	106-121
Selected Events by Radioheliograph	122
Cosmic Rays	
Neutron Monitors Daily Values - Thule, Alert, Deep River, Calgary, Sulphur Mountain, Kiel, Tokyo	124
Chart of Variations - Thule, Alert, Deep River, Calgary, Sulphur Mountain, Kiel, Tokyo	125
Geomagnetic Indices	
Table of Indices Kp, Ci, Cp, Ap, aa	126
Chart of Kp by Solar Rotations and 12-Month Table of Daily Averages Ap	127
Equatorial Indices Dst	128
Principal Magnetic Storms	129
Sudden Commencements and Solar Flare Effects	130
Radio Propagation Indices	
North Atlantic Quality Figures and Forecasts	131
Transmission Frequency Ranges - North Atlantic Path	132-133
Quality Indices on Germany-Canada Path	134

Note: See page 121

For explanations of the data contained herein see *Descriptive Text* published as supplement to February 1974 *Solar-Geophysical Data* (Number 354).

Hα SYNOPT

JUL

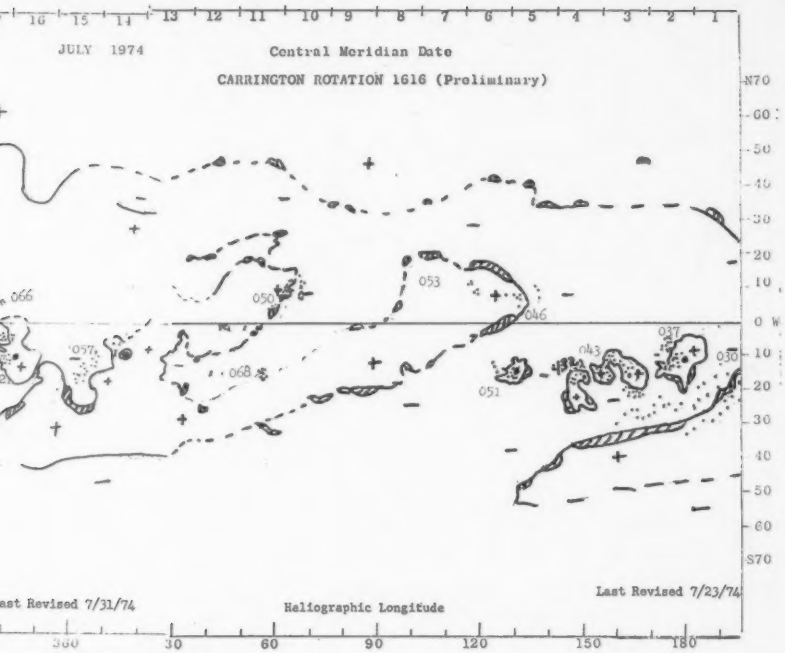


Note: The longitudes on the synoptic charts have been labeled "Carrington longitude". These lo
the heliographic system. This change should also be noted on page 20 of the *Descriptive*
including the reference to L_0, as shown on the pages of solar maps which follow.

26
Jul 74

PTIC CHART

JULY 1974



se longitudes are, in fact, in
tive Text published February 1974

KITT PEAK SOLAR MAGNETOGRAMS

Full disk magnetograms are now made daily at the new vacuum telescope on Kitt Peak in Arizona (long. = 111°37'W lat. = 31°57'N). This telescope has an aperture of 24 inches (61 cm) a focal length of 120 feet (36.6 m) and produces a 13.4 inch (34.3 cm) diameter image of the sun at the entrance slit of a 35 foot (10.7 m) spectrograph. At the exit focus of the spectrograph is a Babcock type magnetograph which utilizes as detectors a pair of 512-element silicon-diode arrays. The diode spacing, referred to the entrance slit, is one arc-sec. Resolution achieved depends in practice mainly on "seeing", but in any case falls to zero at this one arc-sec limit. At present the magnetograms are taken in the wings of Fe I 8688.6, a line selected to faithfully record network, plage and penumbral magnetic flux but which underestimates umbral flux by a factor of about two. A full disk recording is made up of four swaths, taken in the geographic E-W direction, and requires 37 minutes of scan time.

The display of magnetograph data is by a CRT generated picture where bright represents positive flux and dark negative flux. The display intensity is non-linear in an effort to compress the dynamic range so that weak fields can be seen along with the strong sunspot fields. The noise is about 10^{17} maxwells (i.e., 15 gauss over one arc-sec). Blank areas indicate interfering clouds. We believe these high resolution maps will complement the Mt. Wilson iso-gauss charts. We mention that detailed numeric listings exist and can be retrieved from the observatory archives.

Note that during July and August, 1974 occasional swaths show the polarity reversed. This may persist through part of September. The polarity of each swath is set independently, and when there is an error the error will persist across the entire swath. Such polarity problems may be readily detected by a comparison of regional polarities on adjacent dates. For further information contact:

J. Harvey
or W. Livingston
Kitt Peak National Observatory

P.O. Box 26732
Tucson, Arizona 85726

CALIBRATION OF OSO-7 Fe XV 284Å SPECTROHELIOGRAMS PUBLISHED MAY 1972 - MARCH 1974 IN "SOLAR-GEOPHYSICAL DATA"

The Fe XV 284Å Spectroheliograms published in *Solar-Geophysical Data* (Prompt Reports) were given in terms of raw counts per readout. The following information can be used to convert the counts to erg cm^{-2} sec^{-1} at 1 a.u.

The flux received at 1 a.u. in the 284Å line of Fe XV is

$$F \text{ (erg cm}^{-2} \text{ sec}^{-1}) = A \cdot K \cdot C$$

where A is an aperture factor, K is read from the attached graph and C is the count value. If C is the total count (that is, the sum of all data readouts over one large raster), then F is the total Fe XV flux from the entire sun. If C is the count level (that is, one data readout) read from a contour on the spectroheliograms, then F is the flux from an approximately one arc-minute square area on the sun.

The sensitivity of the OSO-7 instrument decayed with time. Thus K is a function of time, and as, a result of its mode of calculation, includes a correction for the varying earth-sun distance. The factor K was calculated by using the EUV vs. Radio Flux Regression Curves* to predict the daily total Fe XV flux from the sun, which should be accurate to ± 50%.

The factor K is calculated for the 10 x 20 arc-sec aperture on OSO-7. In addition, other apertures were used, a fact which was not always clearly noted with the publication. The following list is a summary of the aperture information. For the 10 x 20 arc-sec aperture A = 1.00, for the 20 x 20 arc-sec aperture A = 0.559, for the 60 x 20 arc-sec aperture A = 0.196.

1) Between May 1, 1972 and November 17, 1972 most spectroheliograms were made with the 10 x 20 arc-sec aperture. The exceptions, listed below, were made with the 20 x 20 arc-sec aperture:

May	31														
June	26	29													
July	2	4	8	9	12	13	15	17	18	21	27	28			
Aug.	2	6	10	12	13	14	18	19	20	21	26	29			
Sept.	1	4	5	7	8	9	10	14	24	26	28	29	30		
Oct.	1	2	6	7	9	12	15	18	19	20	21	27	28	29	30	31
Nov.	1	2	5	8	11	14									

2) Between November 18, 1971 and March 7, 1973 most spectroheliograms were made with 20 x 20 arc-sec aperture. The exceptions, listed below, were made with the 10 x 20 arc-sec aperture:

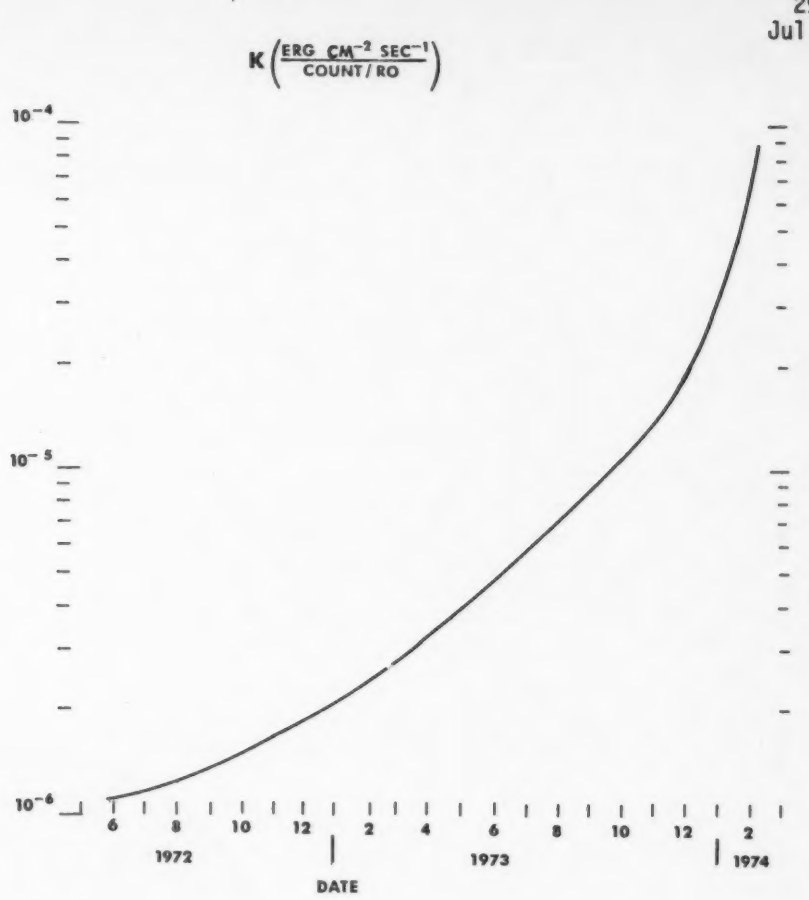
Nov.	21	22	24	25	26	28		
Dec.	6	7	9	10	11	13	15	19
Jan.	6	9	11					

3) Between March 8, 1973 and March 20, 1974 most spectroheliograms were made with 60 x 20 arc-sec aperture. The exceptions, listed below, were made with the 20 x 20 arc-sec aperture, all in 1973:

Mar.	14	16
Apr.	22	
May	6	9

R. D. Chapman, W. M. Neupert, R. J. Thomas

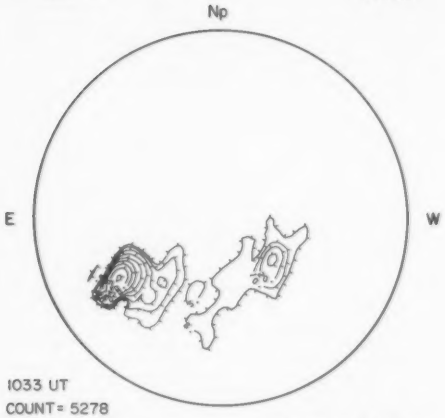
* R. D. Chapman and W. M. Neupert, J. Geophys. Res., in press.


K (ERG CM⁻² SEC⁻¹ / COUNT/RO)
10⁻⁴
10⁻⁵
10⁻⁶
6
8
10
12
2
4
6
8
10
12
2
1972
1973
1974
DATE

JULY 1, 1974 (P=-2

NASA GSFC
OSO-7

X-RAY
8-16A



1033 UT
COUNT= 5278
ROLL = 128.3°
P-TH = -6.64

Counts per 0.125 sec.

McMATH-HUL

1130 UT

KITT PEAK

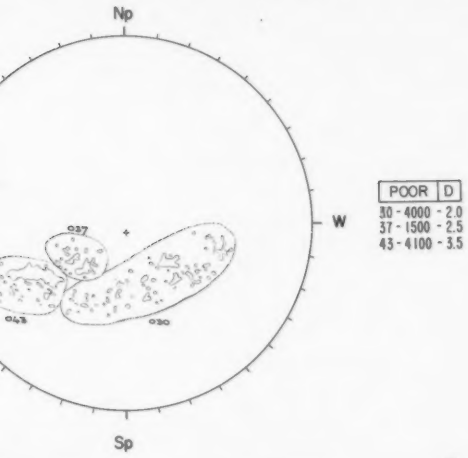
1315 UT

MAGNETO
Bright
Dark-

=-2.87, B_o = 2.87, L_o = 194.99)

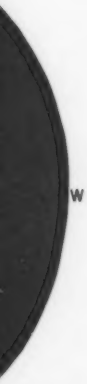
30 Jul 74

HULBERT CALCIUM REPORT

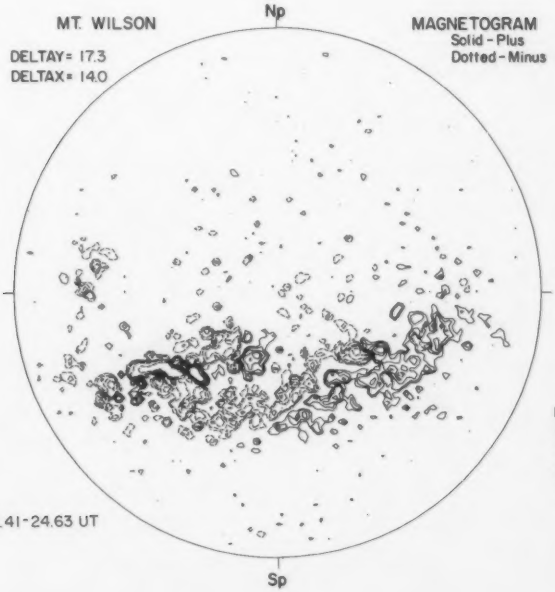


POOR	D
30 - 4000	2.0
37 - 1500	2.5
43 - 4100	3.5

ETOGRAM
right - Plus
ark - Minus



MT. WILSON
DELTAY= 17.3
DELTAX= 14.0



MAGNETOGRAM
Solid - Plus
Dotted - Minus

Levels
± 5
± 10
± 20
± 40
± 80

22.41-24.63 UT

BOULDER
01

Np

Hα

E

W

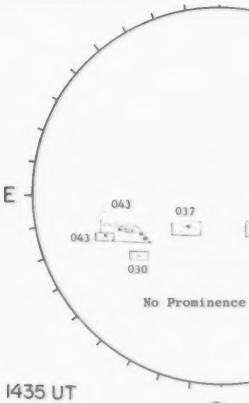
1523 UT

Sp

BOULDER

Np

E



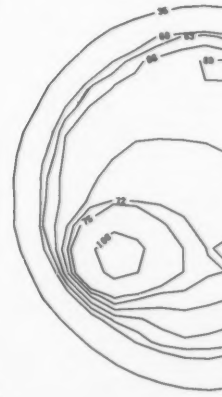
1435 UT

Sp

NELC LA POSTA

Np

E

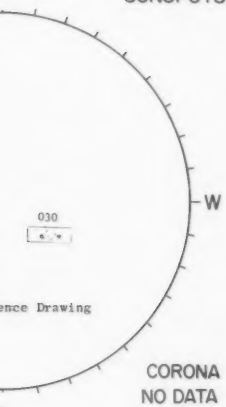


Sp

1703 UT

Np

SUNSPOTS



CORONA
NO DATA

Sp

Np

2.0 CM

Sp

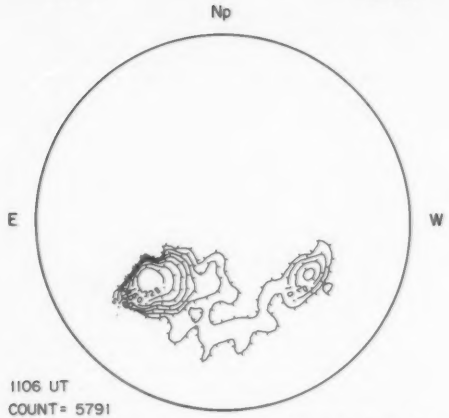
ANT. TEMP. UNIT 100° K

31
Jul 74

JULY 2, 1974 (P=-2

NASA GSFC
OSO-7

X-RAY
8-16A



1106 UT
COUNT = 5791
ROLL = 132.9°
P-TH = -6.59

Counts per 0.125 sec.

KITT PEAK

McMATH-HULL

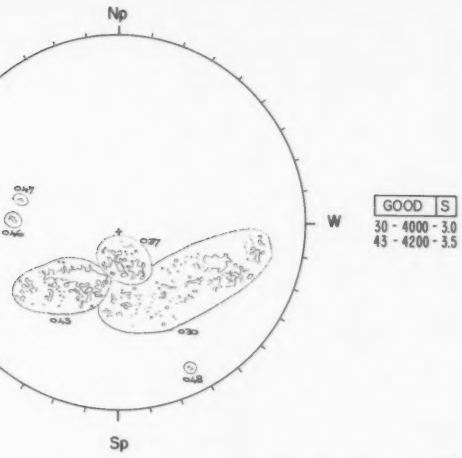
1925 UT

MAGNETO
Bright-
Dark-

=-2.41, B_o = 2.98, L_o = 181.75)

32
Jul 74

HULBERT CALCIUM REPORT

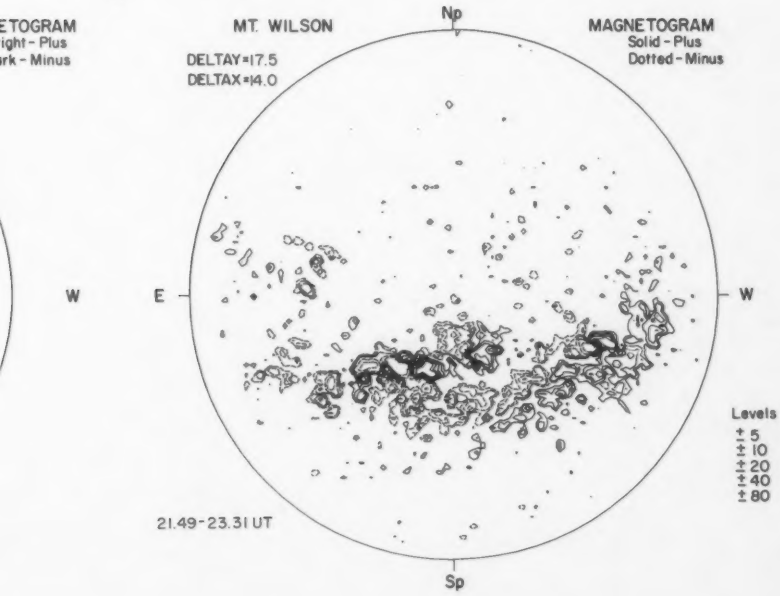


GOOD	S
30 - 4000 - 3.0	
43 - 4200 - 3.5	

ETOGRAM
ight - Plus
rk - Minus

MT. WILSON
DELTAY=17.5
DELTAX=14.0

MAGNETOGRAM
Solid - Plus
Dotted - Minus



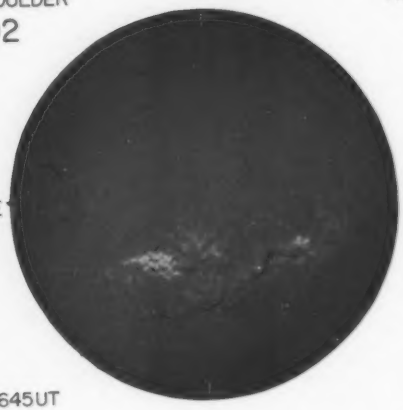
BOULDER
02

Np

Hα

E

W



1645UT

Sp

BOULDER

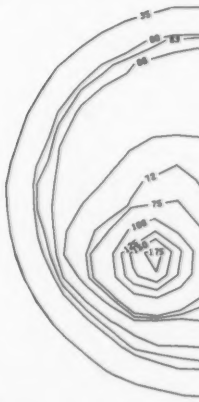
Np

E

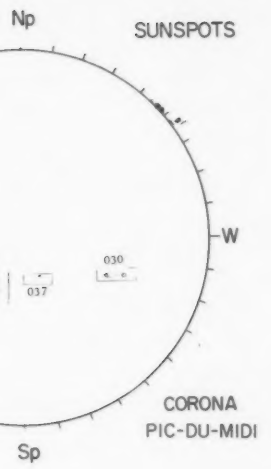
1450 UT

NELC LA POSTA

E



1651 UT


Np
SUNSPOTS
W
030
037
CORONA
PIC-DU-MIDI
Sp

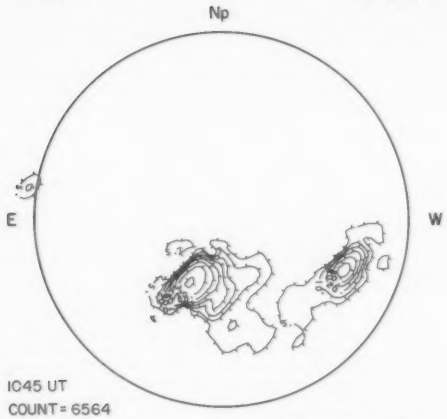
Np
2.0 CM
W
Sp
ANT. TEMP. UNIT 100° K

JULY 3, 1974 (P=-1.

NASA GSFC
OSO-7

X-RAY
8-16A

McMATH-HULB



1045 UT
COUNT = 6564
ROLL = 137.8°
P-TH = -6.54

Counts per 0.125 sec.

KITT PEAK

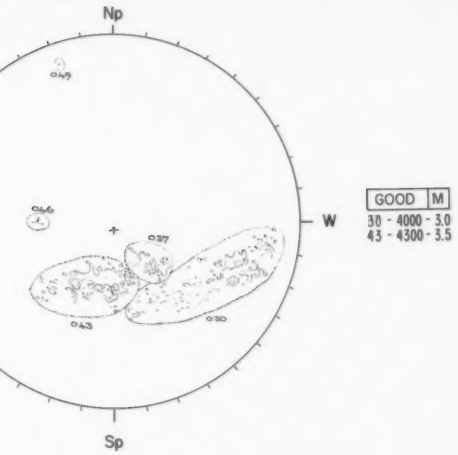
1400 UT

MAGNETOG
Bright -
Dark - M

-1.96, B_o = 3.09, L_o = 168.51)

34
Jul 74

ULBERT CALCIUM REPORT

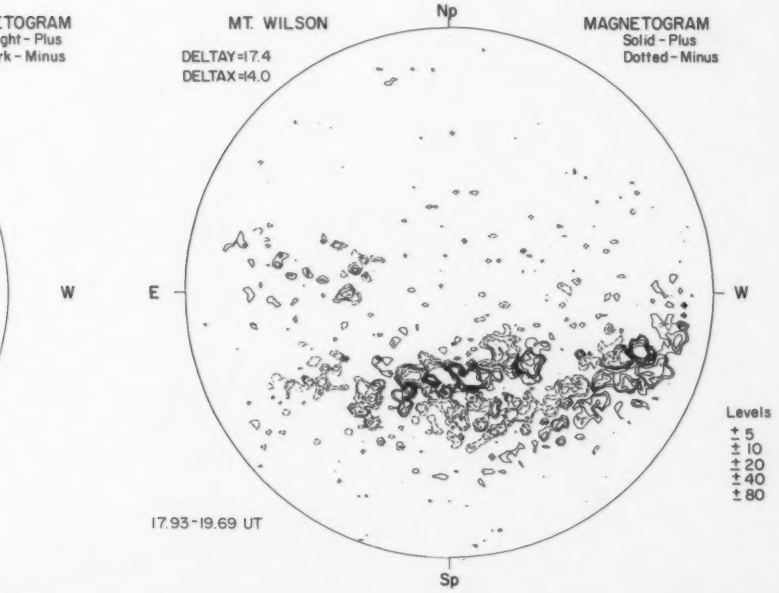


GOOD	M
30 - 4000 - 3.0	
43 - 4300 - 3.5	

TOGRAM
ght - Plus
rk - Minus

MT. WILSON
DELTAY=17.4
DELTAX=14.0

MAGNETOGRAM
Solid - Plus
Dotted - Minus



17.93-19.69 UT

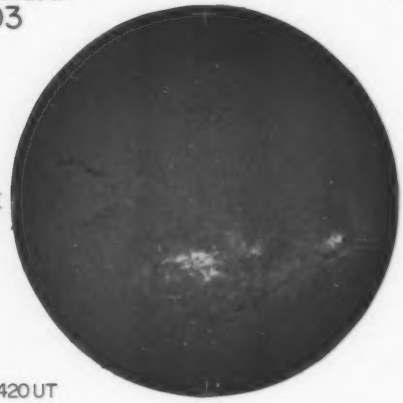
BOULDER
03

Np

Hα

E

W



1420 UT

Sp

BOULDER

E

043

043

1430 UT

NELC LA POSTA

E

1813 UT

Np
SUNSPOTS
W
043
037
030
043
CORONA
LOMNICKY STIT
Sp

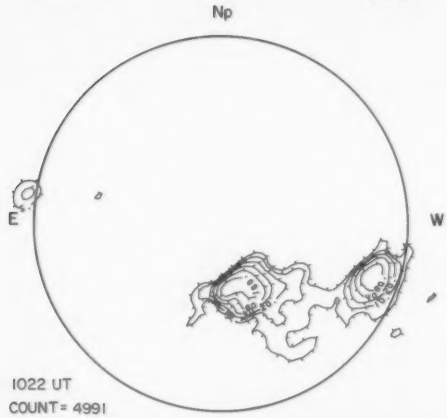
2.0CM
Np
W
Sp
ANT. TEMP. UNIT 100° K

35
Jul 74

JULY 4, 1974 (P=-1.5

NASA GSFC
OSO-7

X-RAY
8-16A



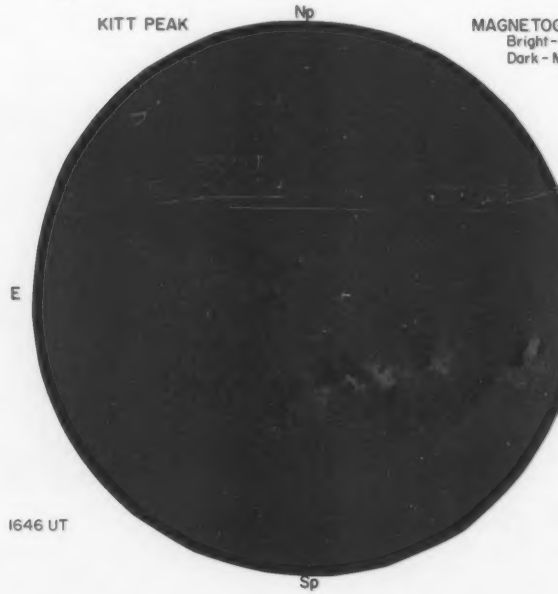
1022 UT
COUNT = 4991
ROLL = 143.1°
P-TH = -6.49

Counts per 0.125 sec.

McMATH-HULB

1310 UT

KITT PEAK

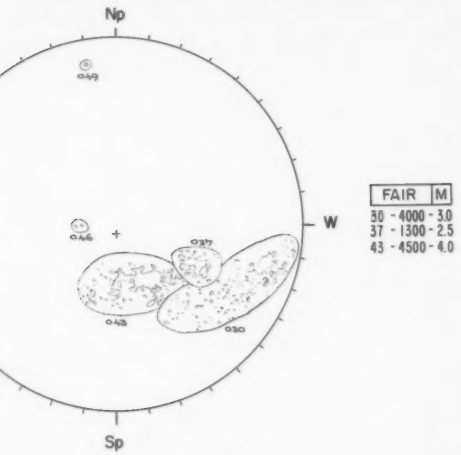


1646 UT

MAGNETOG
Bright-
Dark - M

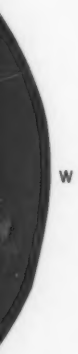
-1.50, $B_o = 3.20$, $L_o = 155.28$)

ULBERT CALCIUM REPORT

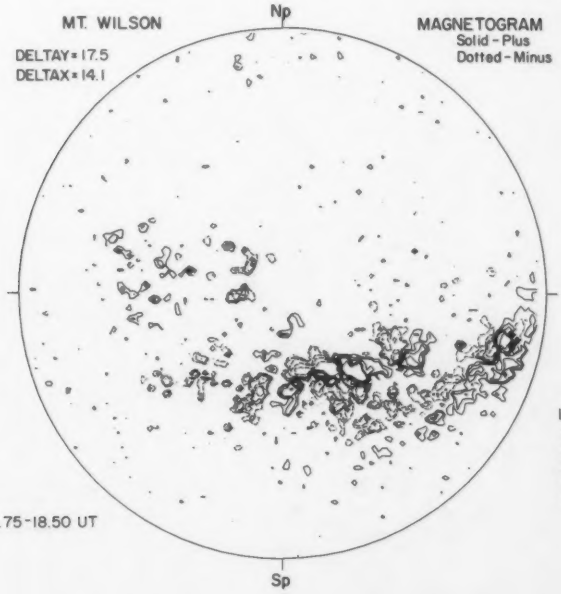


FAIR	M
30 - 4000 - 3.0	
37 - 1300 - 2.5	
43 - 4500 - 4.0	

TOGRAM
ght - Plus
k - Minus



MT. WILSON
DELTAY = 17.5
DELTAX = 14.1



MAGNETOGRAM
Solid - Plus
Dotted - Minus

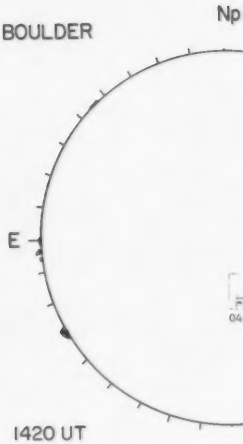
Levels
±5
±10
±20
±40
±80

16.75-18.50 UT

RAMEY AFB
04

1138UT

BOULDER



1420 UT

NELC LA POSTA

1707 UT

Np

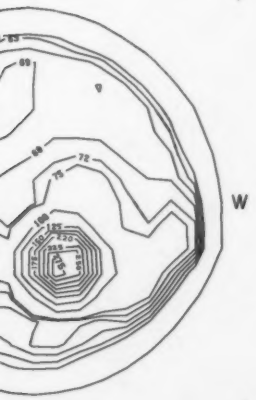
SUNSPOTS

CORONA
NO DATA

Sp

2.0 CM

Np



Sp

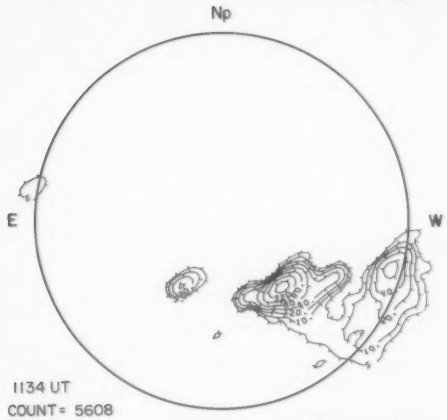
ANT. TEMP. UNIT 100° K

37
Jul 74

JULY 5, 1974 (P=-1.

NASA GSFC
OSO-7

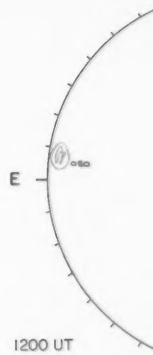
X-RAY
8-16A



1134 UT
COUNT = 5608
ROLL = 150.1°
P-TH = -6.43

Counts per 0.125 sec.

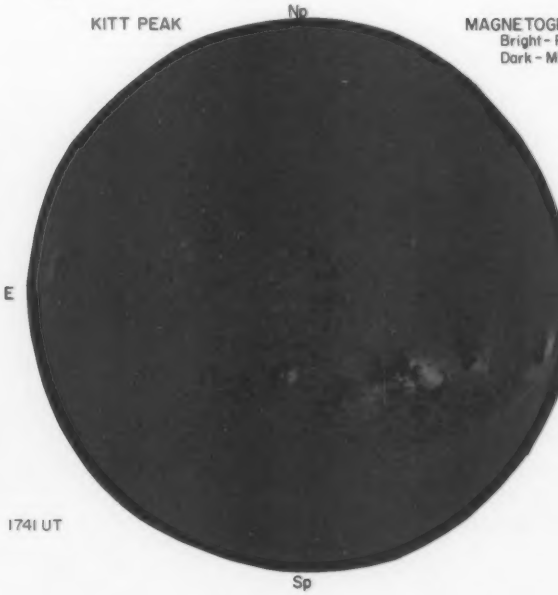
McMATH-HULB



1200 UT

KITT PEAK

MAGNETOG
Bright -
Dark - M

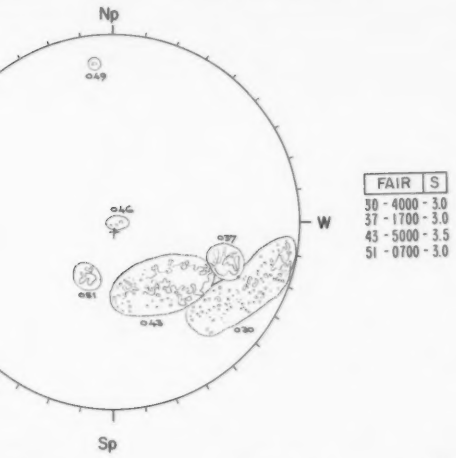


1741 UT

-1.05, $B_o = 3.31$, $L_o = 142.04$)

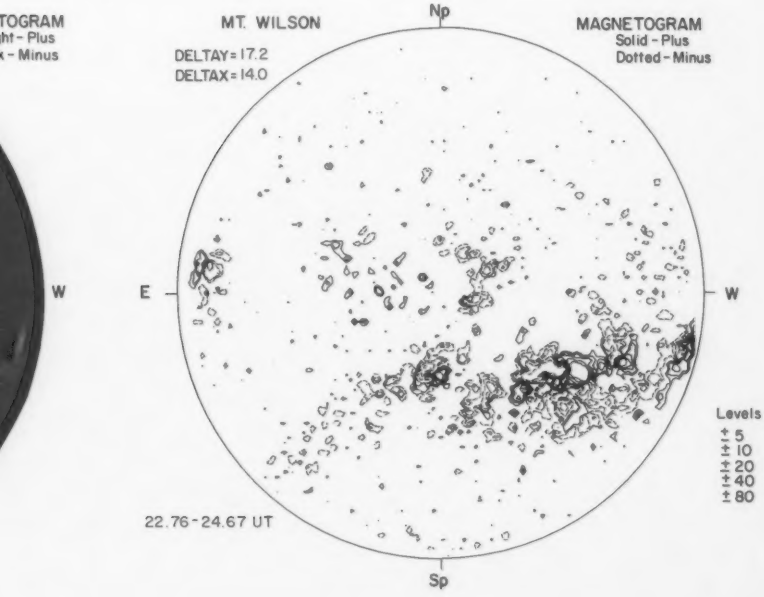
38
Jul 74

ULBERT CALCIUM REPORT



FAIR	S
30 - 4000 - 3.0	
37 - 1700 - 3.0	
43 - 5000 - 3.5	
51 - 0700 - 3.0	

TOGRAM
ht - Plus
- Minus



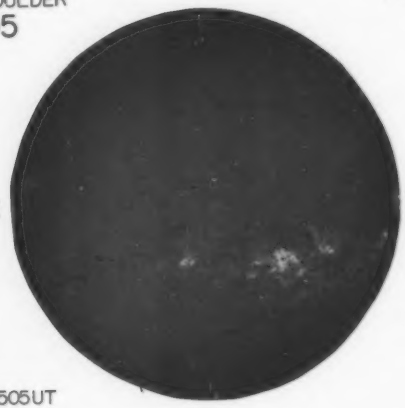
BOULDER
05

Np

Hα

E

W



1505UT

Sp

BOULDER

Np

E

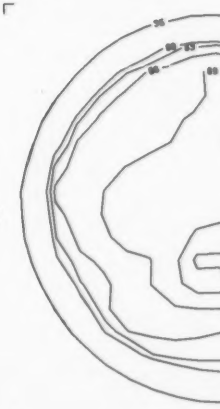
1355 UT

Sp

NELC LA POSTA

Np

E

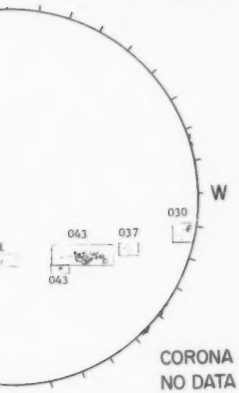


L

1655 UT

Np

SUNSPOTS



CORONA
NO DATA

Sp

Np

2.0 CM

Sp

ANT. TEMP. UNIT 100° K

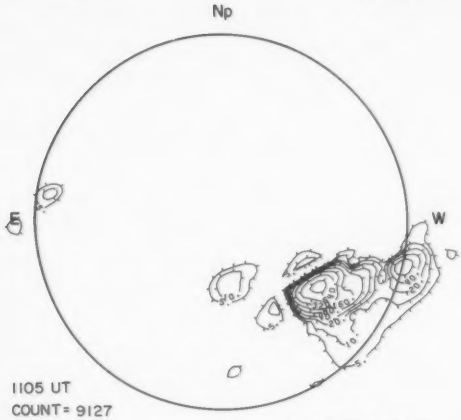
39
Jul 74

JULY 6, 1974 (P=-0.

NASA GSFC
OSO-7

X-RAY
8-16A

McMATH-HULBE



1105 UT
COUNT= 9127
ROLL = 158.1°
P-TH = -6.37

Counts per 0.125 sec.

KITT PEAK

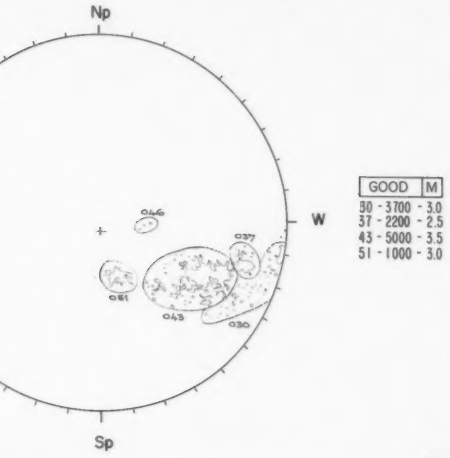
1230 UT

MAGNETOGR
Bright - F
Dark - M

-0.59, $B_o = 3.41$, $L_o = 128.81$)

40
Jul 74

LBERT CALCIUM REPORT

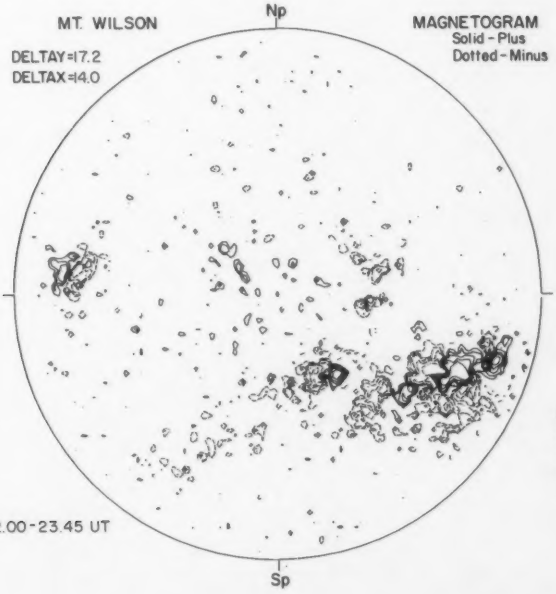


GOOD	M
30 - 3700	- 3.0
37 - 2200	- 2.5
43 - 5000	- 3.5
51 - 1000	- 3.0

TOGRAM
nt - Plus
- Minus

MT. WILSON
DELTAY=17.2
DELTAX=14.0

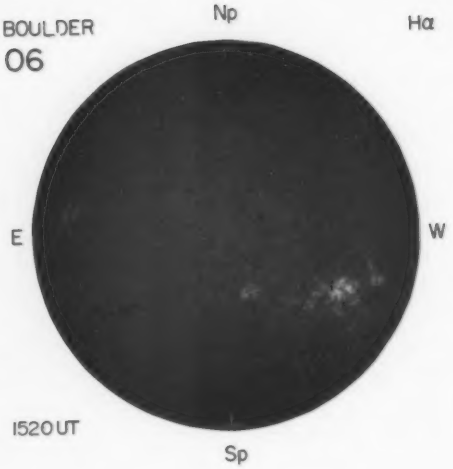
MAGNETOGRAM
Solid - Plus
Dotted - Minus



Levels
± 5
± 10
± 20
± 40
± 80

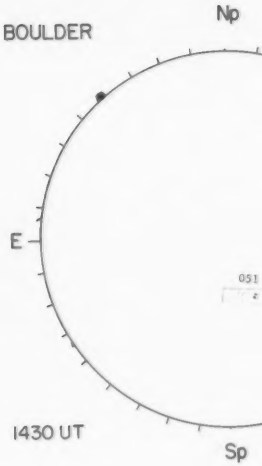
22.00 - 23.45 UT

BOULDER
06



1520 UT

BOULDER



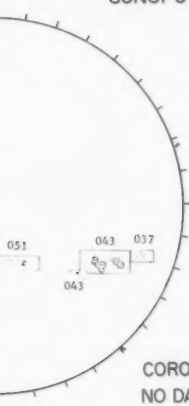
1430 UT

NELC LA POSTA

1718 UT

p

SUNSPOTS



CORONA
NO DATA

Sp

2.0 CM

Np

Sp

ANT. TEMP. UNIT 100°K

41
Jul 74

JULY 7, 1974 (P=-0

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULB

Np

E

Note: OSO-7 has reentered the atmosphere. Thus, no more X-ray maps are available from this satellite. OSO-5 has been reacquired and X-ray maps, beginning with the July data, are expected soon for publication.

W

E

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1130 UT

Sp

KITT PEAK

Np

MAGNETOG
Bright-
Dark-N

E

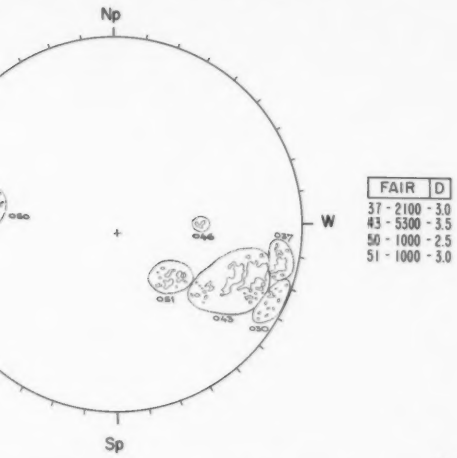
NO DATA

Sp

-0.14, $B_o = 3.52$, $L_o = 115.57$)

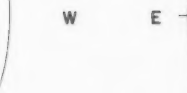
42
Jul 74

ULBERT CALCIUM REPORT

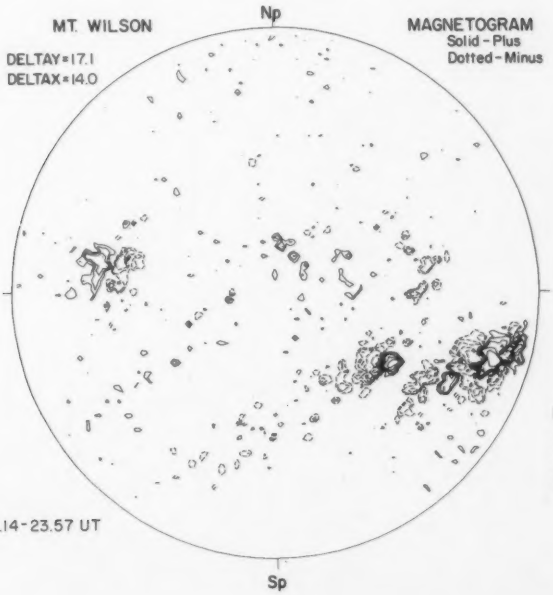


FAIR	D
37 - 2100	- 3.0
43 - 5300	- 3.5
50 - 1000	- 2.5
51 - 1000	- 3.0

TOGRAM
ght - Plus
rk - Minus



MT. WILSON
DELTAY = 17.1
DELTAX = 14.0

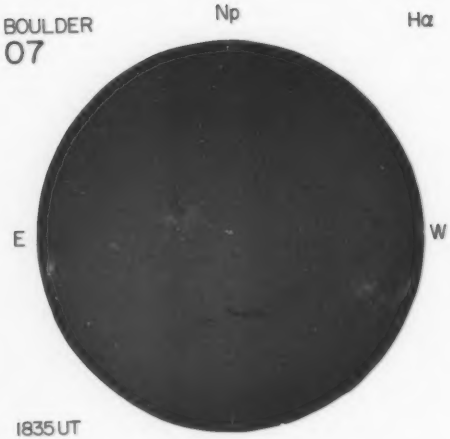


MAGNETOGRAM
Solid - Plus
Dotted - Minus

Levels
± 5
± 10
± 20
± 40
± 80

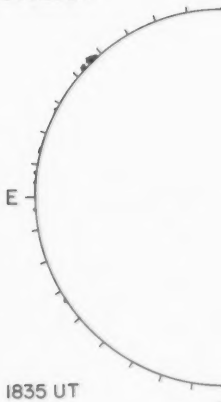
22.14 - 23.57 UT

BOULDER
07



1835 UT

BOULDER



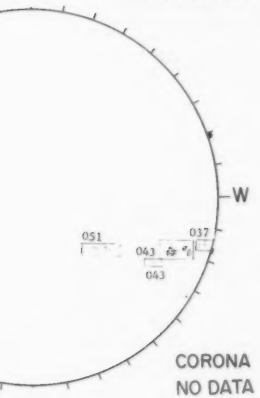
1835 UT

NELC LA POSTA

1742 UT

Np

SUNSPOTS

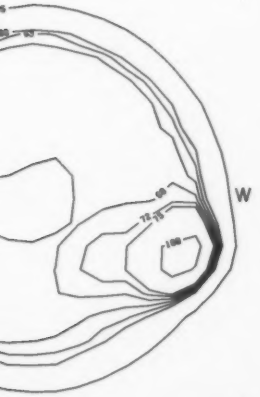


CORONA
NO DATA

Sp

Np

2.0 CM



Sp

ANT. TEMP. UNIT 100°K

43
Jul 74

JULY 8, 1974 (P = 0.3

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULBE

Np

E

W

E

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1230 UT

Sp

KITT PEAK

Np

MAGNETOGR
Bright - P
Dark - Mi

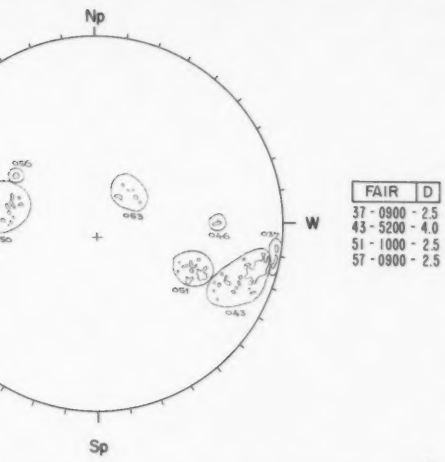
E

NO DATA

Sp

0.31, $B_o = 3.62$, $L_o = 102.34$)

LBERT CALCIUM REPORT

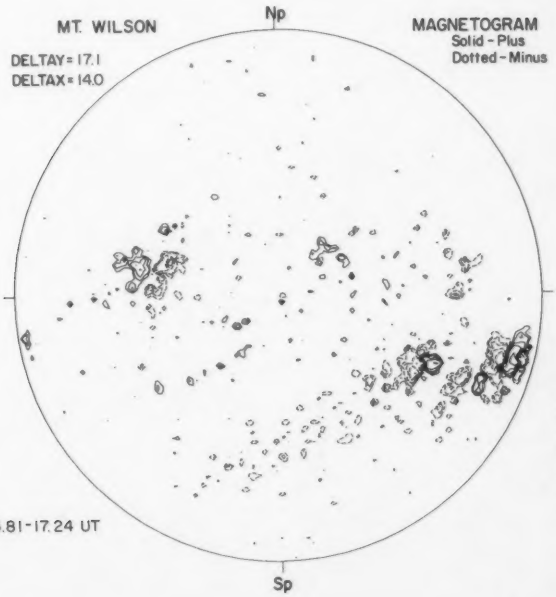


FAIR	D
37 - 0900	- 2.5
43 - 5200	- 4.0
51 - 1000	- 2.5
57 - 0900	- 2.5

OGRAM
t - Plus
- Minus

MT. WILSON
DELTAY = 17.1
DELTAX = 14.0

MAGNETOGRAM
Solid - Plus
Dotted - Minus



Levels
± 5
± 10
± 20
± 40
± 80

15.81 - 17.24 UT

BOULDER
08

Np

Hα

E

W

1535UT

Sp

BOULDER

N

E

057

1615 UT

S

NELC LA POSTA

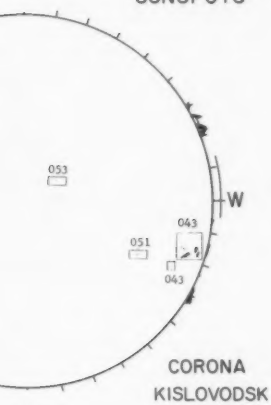
N

E

1814 UT

Np

SUNSPOTS



CORONA
KISLOVODSK

Sp

Np

2.0 CM

Sp

ANT. TEMP. UNIT 100° K

45
Jul 74

JULY 9, 1974 (P = 0.

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULB

Np

E

W

E

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1245 UT

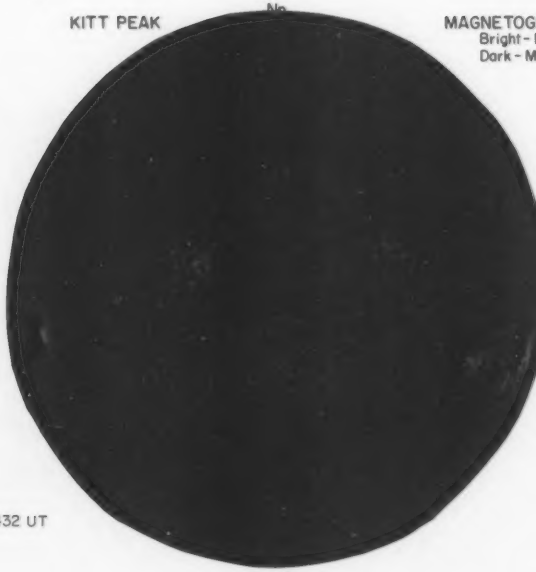
Sp

KITT PEAK

Np

MAGNETOG
Bright -
Dark - M

E

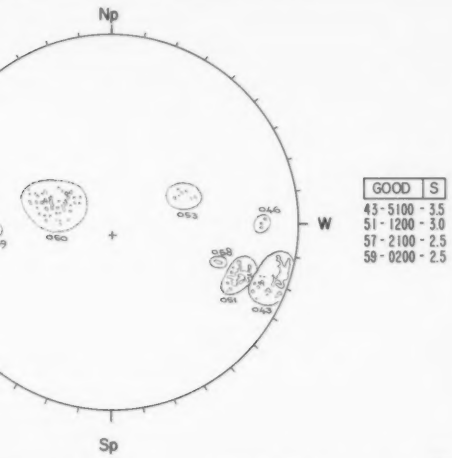


1432 UT

Sp

0.77, $B_o = 3.73$, $L_o = 89.10$)

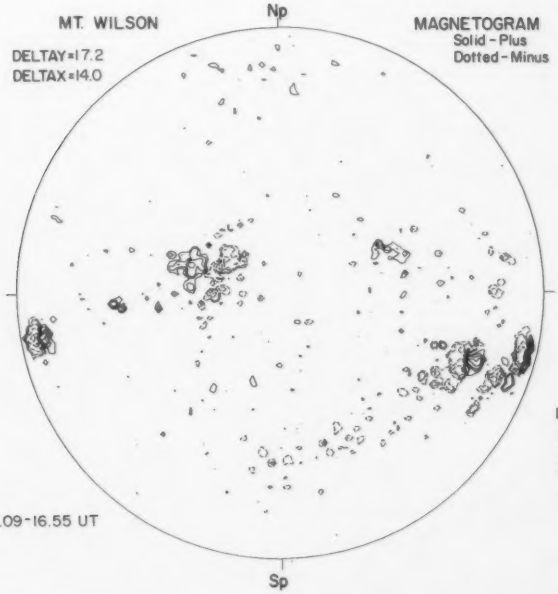
ULBERT CALCIUM REPORT



GOOD	S
43 - 5100	- 3.5
51 - 1200	- 3.0
57 - 2100	- 2.5
59 - 0200	- 2.5

TOGRAM
ght - Plus
k - Minus

MT. WILSON
DELTAY=17.2
DELTAX=14.0



MAGNETOGRAM
Solid - Plus
Dotted - Minus

Levels
+ 5
+ 10
+ 20
+ 40
+ 80

15.09-16.55 UT

BOULDER
09

Np

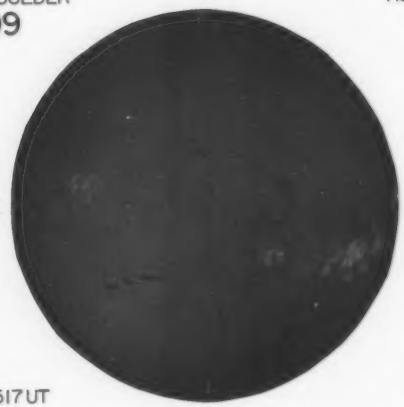
Hα

E

W

Sp

1517 UT



BOULDER

Np

E

057

1600 UT

Sp

NELC LA POSTA

Np

E

L

1825 UT

Sp

Np

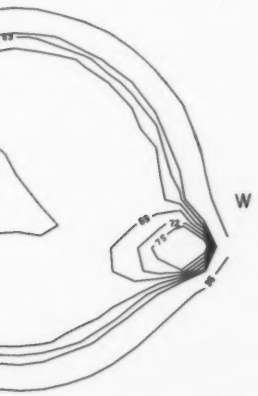
SUNSPOTS

CORONA
KISLOVODSK

Sp

2.0CM

Np



Sp

ANT. TEMP. UNIT 100° K

47
Jul 74

JULY 10, 1974 (P = I.

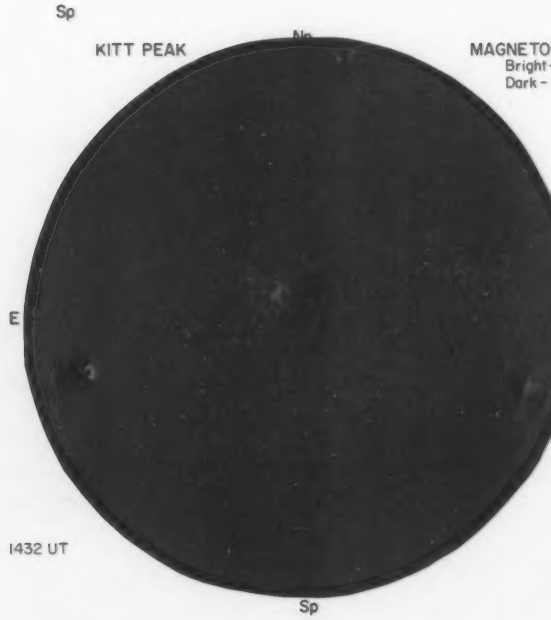
UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HUL

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1335 UT

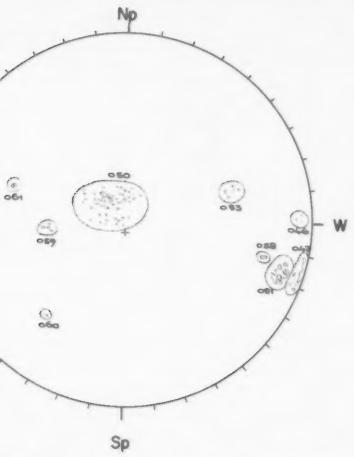


P = 1.22, B_o = 3.83, L_o = 75.87)

48
Jul 74

-HULBERT

CALCIUM REPORT

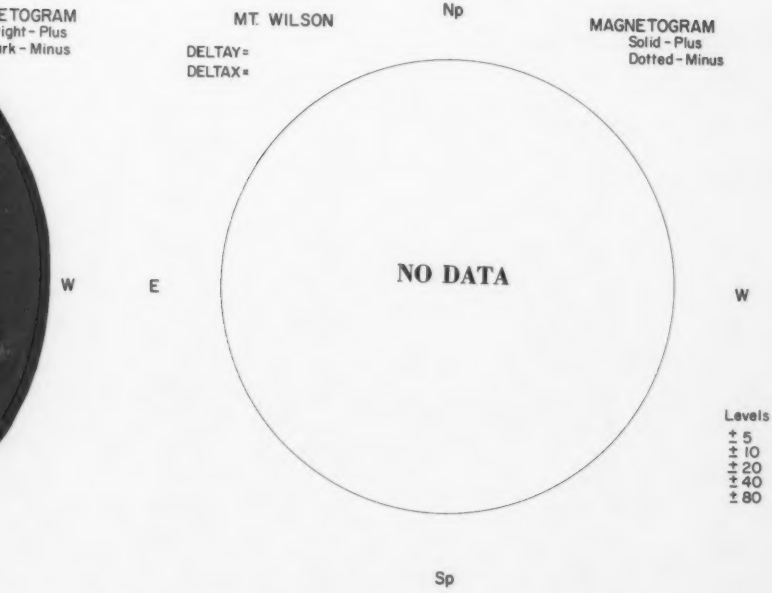


GOOD	S
43 - 2000	2.5
51 - 1300	2.5
57 - 2700	3.0

ETOGRAM
ight - Plus
rk - Minus

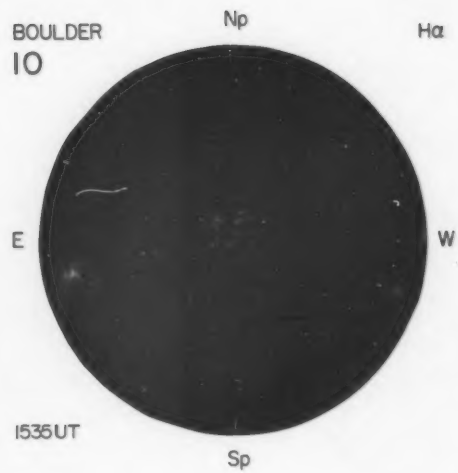
MT. WILSON

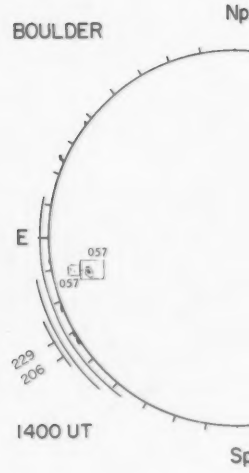
DELTAY=
DELTAX=

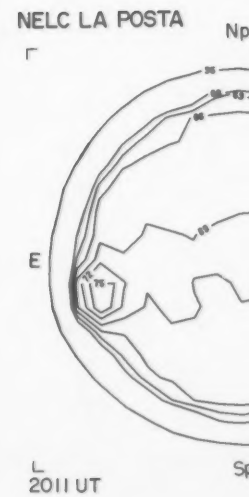


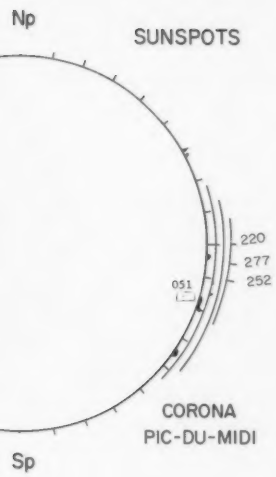
MAGNETOGRAM
Solid - Plus
Dotted - Minus

Levels
± 5
± 10
± 20
± 40
± 80


BOULDER
10
Np
Hα
E
W
1535UT
Sp


BOULDER
Np
E
057
057
229
206
1400 UT
Sp


NELC LA POSTA
Np
E
2011 UT
Sp


Np
SUNSPOTS
220
277
252
051
CORONA
PIC-DU-MIDI
Sp

Np
2.0 CM
W
Sp
ANT. TEMP. UNIT 100° K

JULY 11, 1974 (P = 1.6

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULB

Np

E

W

E

057

069

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1130 UT

Sp

KITT PEAK

Np

MAGNETOG
Bright -
Dark - M

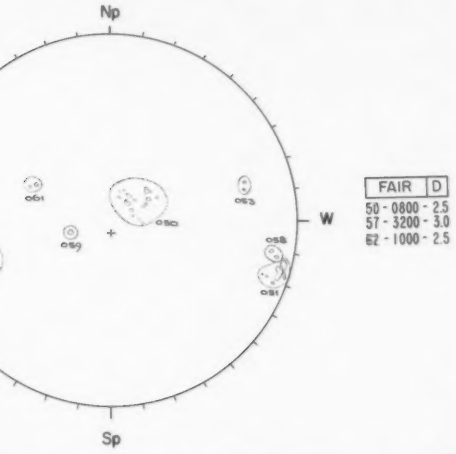
E

1448 UT

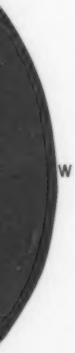
Sp

1.67, $B_o = 3.93$, $L_o = 62.63$)

ULBERT CALCIUM REPORT

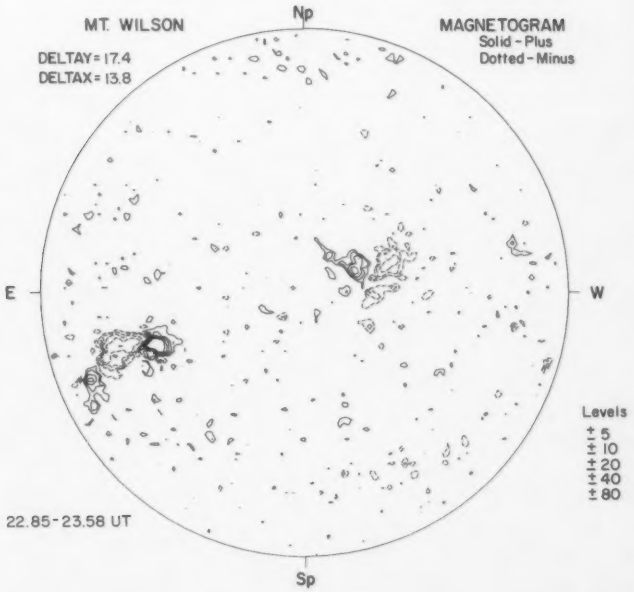


TOGRAM
ght - Plus
k - Minus



MT. WILSON
DELTAY = 17.4
DELTAX = 13.8

MAGNETOGRAM
Solid - Plus
Dotted - Minus



22.85 - 23.58 UT

BOULDER

Np

Hα

E

W

1602 UT

Sp

BOULDER

Np

E

057

057

1715 UT

Sp

NELC LA POSTA

Np

E

L

Sp

1858 UT

Np

SUNSPOTS

CORONA
PIC-DU-MIDI

Sp

2.0 CM

Np

Sp

ANT. TEMP. UNIT 100° K

51
Jul 74

JULY 12, 1974 (P=2.1

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULBER

Np

E

W

E

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1215 UT

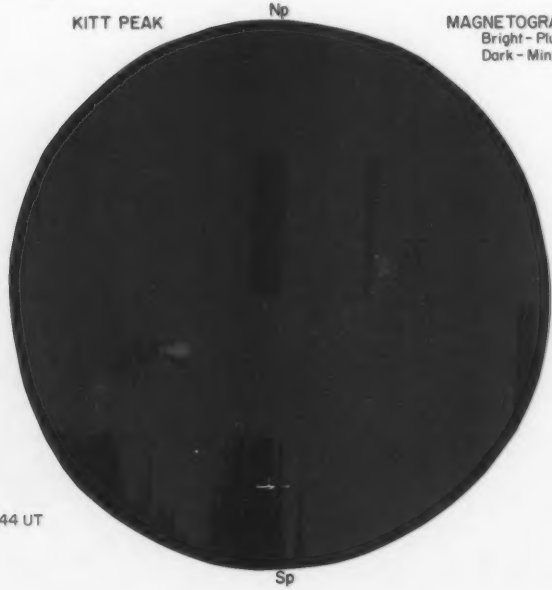
Sp

KITT PEAK

Np

MAGNETOGRA
Bright - Pl
Dark - Min

E



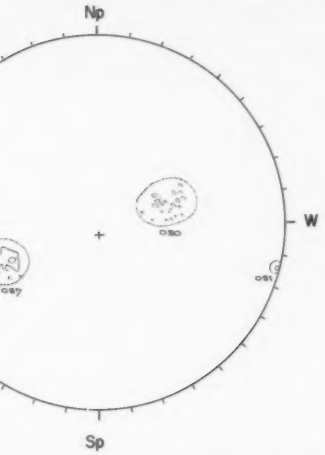
1844 UT

Sp

2.12, $B_o = 4.03$, $L_o = 49.40$)

52
Jul 74

LBERT CALCIUM REPORT



GOOD	S
50 - 1000 - 2.5	
57 - 3300 - 3.0	
63 - 0500 - 3.0	

OGRAM
- Plus
- Minus

MT. WILSON

DELTAY=
DELTAX=

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

W E

NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

BOULDER

12

Np

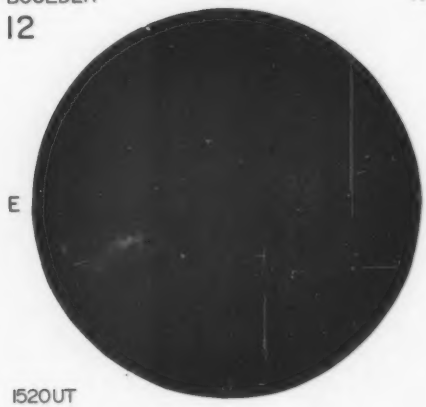
Hα

E

W

Sp

1520UT



BOULDER

E

057

057

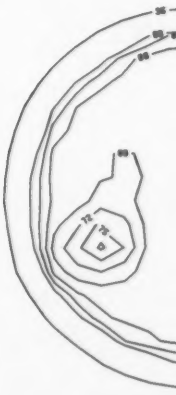
1400 UT

NELC LA POSTA

E

L

1824 UT



Np
SUNSPOTS
W
118
S
CORONA
NORIKURA
Sp

Np
2.0 CM
W
Sp
ANT. TEMP. UNIT 100° K

53
Jul 74

JULY 13, 1974 (P = 2.5

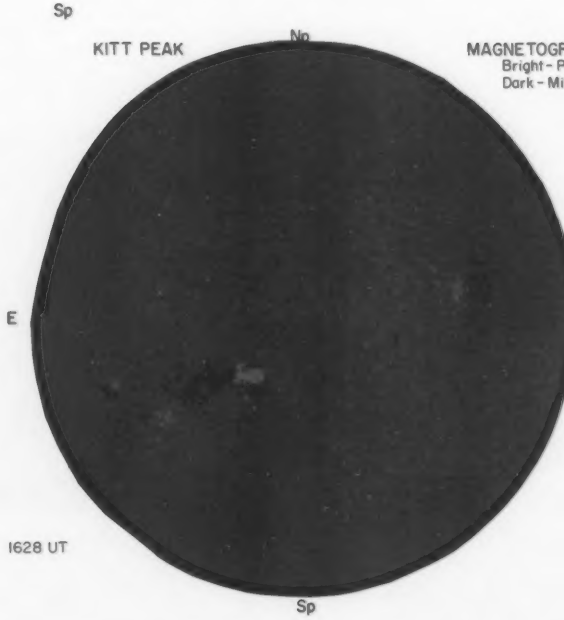
UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULBE

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1205 UT



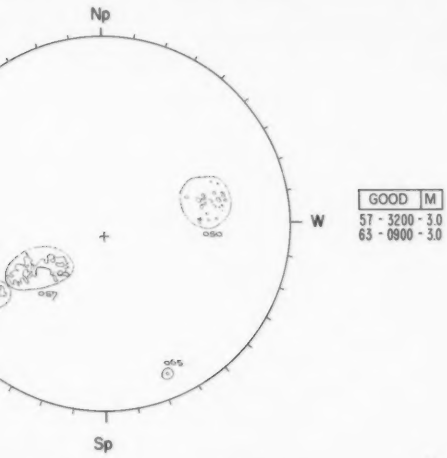
MAGNETOGR
Bright - P
Dark - Mi

1628 UT

2.57, $B_o = 4.13$, $L_o = 36.16$)

54
Jul 74

LBERT CALCIUM REPORT



GOOD	M
57 - 3200	3.0
63 - 0900	3.0

TOGRAM
nt - Plus
- Minus

MT. WILSON
DELTAY=
DELTAX=

MAGNETOGRAM
Solid - Plus
Dotted - Minus

W E

W

Levels
± 5
± 10
± 20
± 40
± 80

BOULDER
13

Np

Hα

E

W

1517 UT

Sp

BOULDER

Np

E

057

057

063

1400 UT

Sp

NELC LA POSTA

Np

E

1903 UT

Np
SUNSPOTS
W
CORONA
KISLOVODSK
Sp

2.0 CM
Np
W
Sp
ANT. TEMP. UNIT 100° K

55
Jul 74

JULY 14, 1974 (P=3.0

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULB

Np

E

W

E

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1145 UT

Sp

KITT PEAK

Np

MAGNETOG
Bright -
Dark - M

E

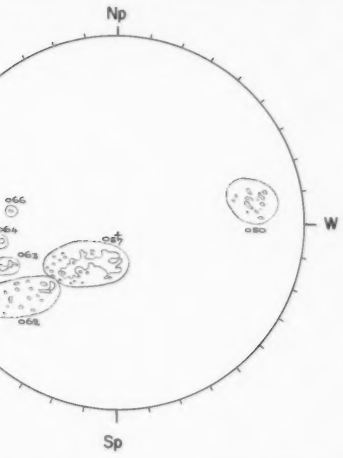
NO DATA

Sp

-3.02, B_o = 4.23, L_o = 22.93)

56
Jul 74

HULBERT CALCIUM REPORT



FAIR	D
57 - 3500	- 3.0
62 - 1500	- 2.5
63 - 0800	- 3.0
64 - 0400	- 2.5
67 - 0700	- 2.5

TOGRAM
ght - Plus
k - Minus

MT. WILSON

DELTAY=
DELTAX=

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

W E

NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

BOULDER

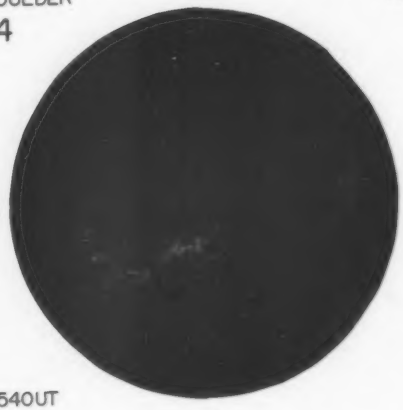
14

Np

Hα

E

W



1540UT

Sp

BOULDER

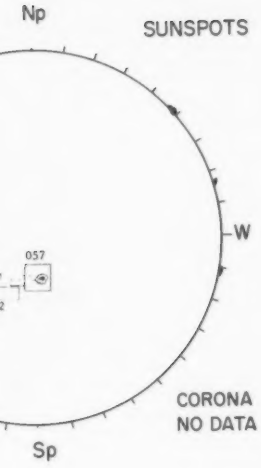
E

1625 UT

NELC LA POSTA

E

1807 UT


Np
SUNSPOTS
W
057
CORONA
NO DATA
Sp

Np
2.0CM
W
Sp
ANT. TEMP. UNIT 100°K

57
Jul 74

JULY 15, 1974 (P = 3.4

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULBE

Np

E

W

E

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1325 UT

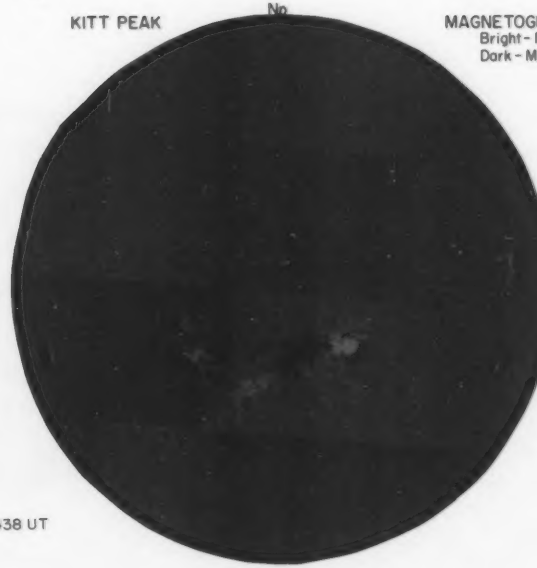
Sp

KITT PEAK

Np

MAGNETOG
Bright -
Dark - M

E



1438 UT

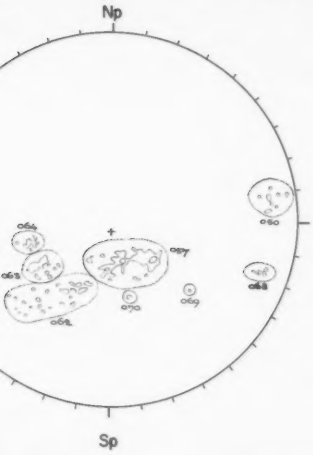
Sp

3.46, $B_o = 4.33$, $L_o = 9.70$)

58
Jul 74

ULBERT

CALCIUM REPORT

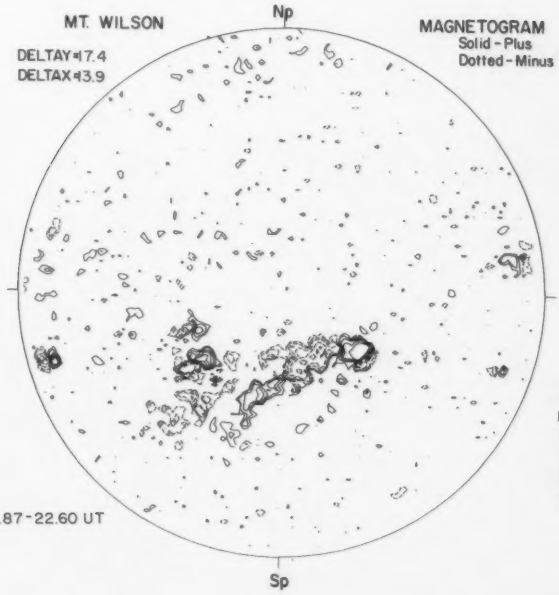


GOOD	S
57 - 3300 - 3.0	
62 - 1600 - 2.5	
63 - 1000 - 3.5	
64 - 0500 - 2.5	

TOGRAM
ht - Plus
x - Minus

MT. WILSON

DELTAY=17.4
DELTAX=13.9

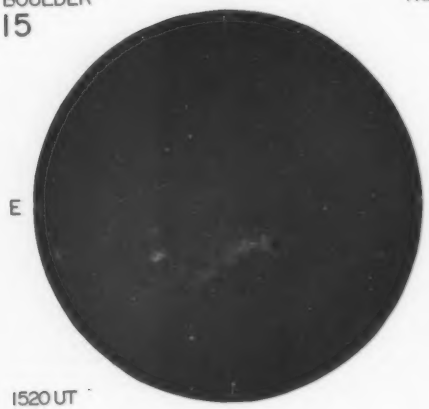


MAGNETOGRAM
Solid - Plus
Dotted - Minus

Levels
± 5
± 10
± 20
± 40
± 80

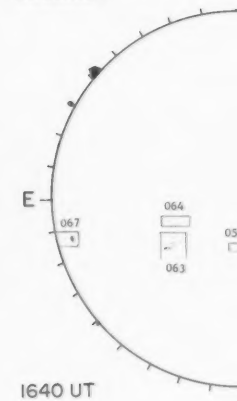
21.87 - 22.60 UT

BOULDER
15



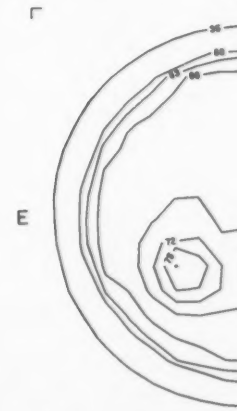
1520 UT

BOULDER

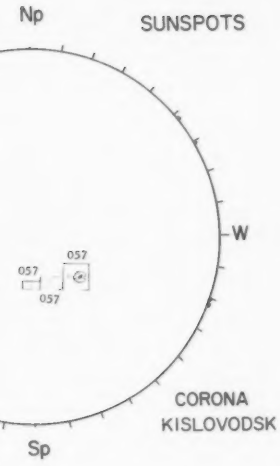


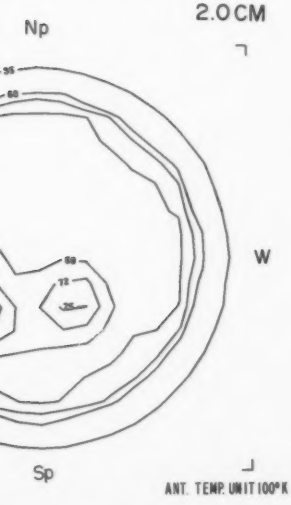
1640 UT

NELC LA POSTA



1845 UT


Np
SUNSPOTS
W
057
057
057
CORONA
KISLOVODSK
Sp


Np
2.0 CM
W
Sp
ANT. TEMP. UNIT 100°K

59
Jul 74

JULY 16, 1974 (P= 3

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HUL

Np

E

W

E

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1440 UT

Sp

KITT PEAK

Np

MAGNETO
Bright-
Dark-

E

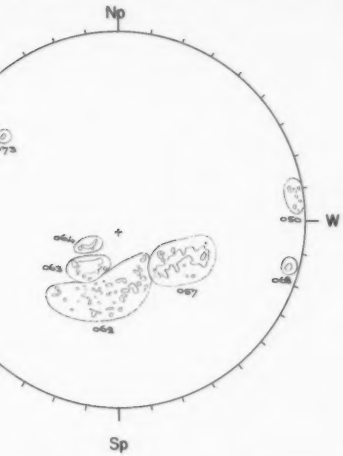
NO DATA

Sp

= 3.91, B_o = 4.42, L_o = 356.47)

60
Jul 74

ULBERT CALCIUM REPORT



GOOD	S
57 - 3300	- 2.5
63 - 1400	- 3.5
64 - 0400	- 3.5
67 - 1500	- 2.5
68 - 0500	- 2.5

ETOGRAM
ight - Plus
ark - Minus

MT. WILSON

DELTAY=
DELTAX=

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

W E

NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

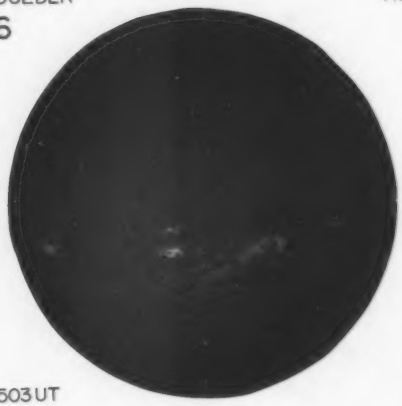
BOULDER
16

Np

Hα

E

W



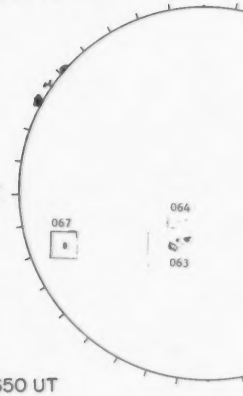
1503 UT

Sp

BOULDER

Np

E



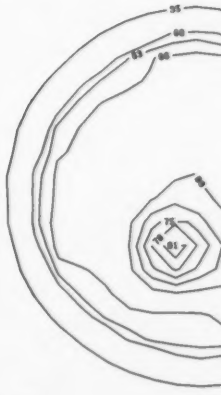
1650 UT

Sp

NELC LA POSTA

Np

E



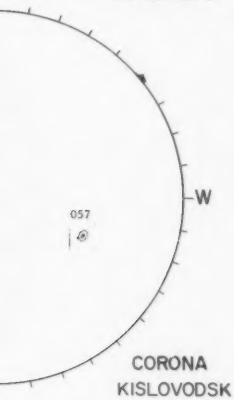
L

1718 UT

Sp

Up

SUNSPOTS



CORONA
KISLOVODSK

Sp

Up

2.0 CM

Sp

ANT. TEMP. UNIT 100° K

61
Jul 74

JULY 17, 1974 (P = 4.3

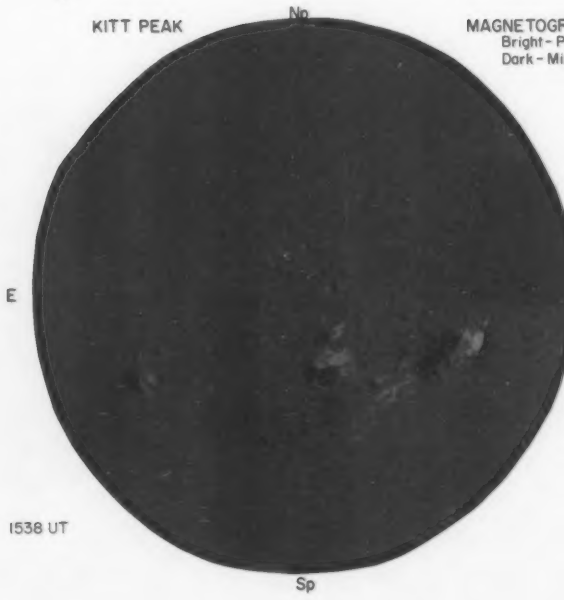
UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULBE

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1145 UT

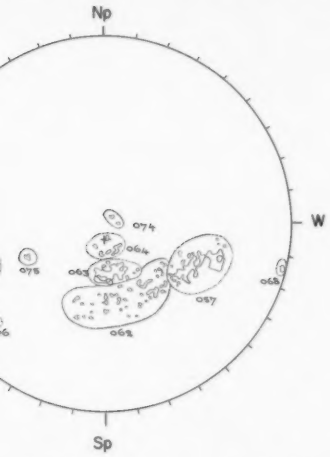


MAGNETOGR
Bright - P
Dark - Mi

4.35, $B_o = 4.52$, $L_o = 343.23$)

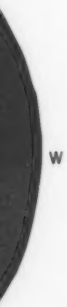
62
Jul 74

LBERT CALCIUM REPORT



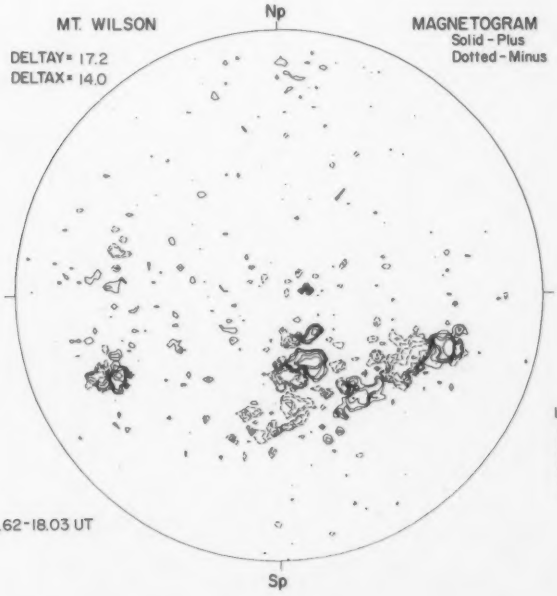
FAIR	D
57 - 3200	- 3.0
63 - 1600	- 3.5
64 - 0500	- 2.5
67 - 1400	- 3.0
68 - 0300	- 2.5

TOGRAM
nt - Plus
- Minus



MT. WILSON

DELTAY = 17.2
DELTAX = 14.0

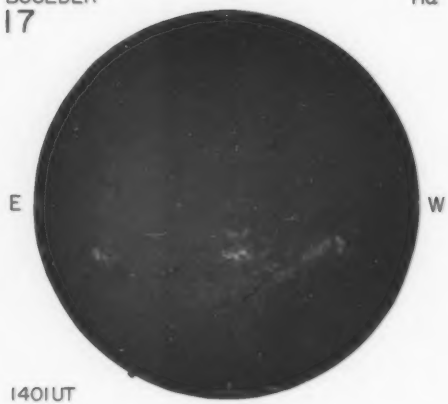


MAGNETOGRAM
Solid - Plus
Dotted - Minus

Levels
± 5
± 10
± 20
± 40
± 80

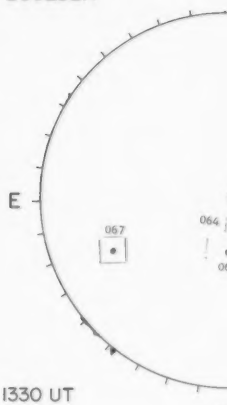
16.62 - 18.03 UT

BOULDER
17



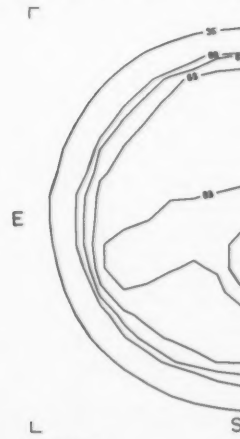
1401UT

BOULDER



1330 UT

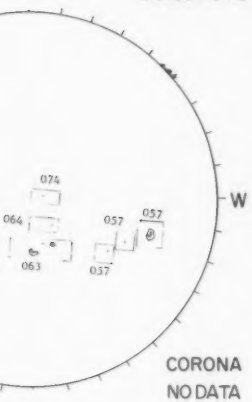
NELC LA POSTA



1830 UT

Np

SUNSPOTS



CORONA
NO DATA

Sp

Np

2.0 CM

Sp

ANT. TEMP. UNIT 100° K

63
Jul 74

JULY 18, 1974 (P = 4.

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HUL

Np

E

W

E

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1330 UT

Sp

KITT PEAK

Np

MAGNETO
Bright-
Dark-

E

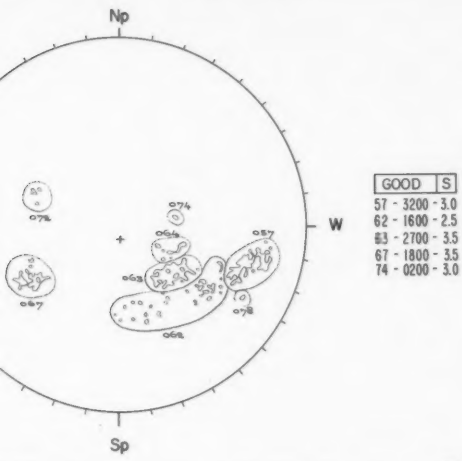
NO DATA

Sp

= 4.79, B_o = 4.61, L_o = 330.00)

64
Jul 74

HULBERT CALCIUM REPORT



GOOD	S
57 - 3200 - 3.0	
62 - 1600 - 2.5	
63 - 2700 - 3.5	
67 - 1800 - 3.5	
74 - 0200 - 3.0	

ETOGRAM
ight - Plus
ark - Minus

MT. WILSON

DELTAY=
DELTAX=

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

W E

NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

BOULDER
18

Np

Hα

E

W

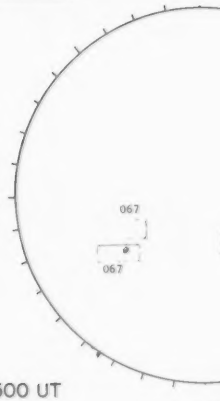
1449 UT

Sp

BOULDER

Np

E



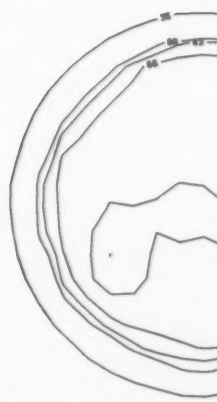
1500 UT

Sp

NELC LA POSTA

Np

E

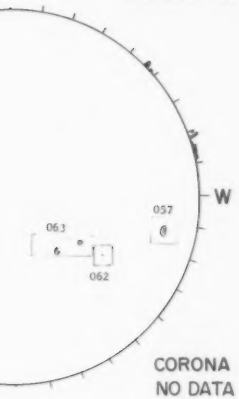


Sp

1833 UT

Np

SUNSPOTS



CORONA
NO DATA

Sp

2.0CM

Np

Sp

ANT. TEMP. UNIT 100°K

65
Jul 74

JULY 19, 1974 (P = 5.2

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULBE

Np

E

W

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1335 UT

Sp

KITT PEAK

Np

MAGNETOG
Bright -
Dark - M

E

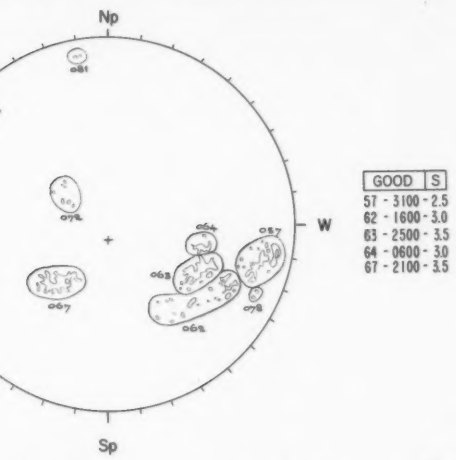
NO DATA

Sp

5.23, $B_o = 4.71$, $L_o = 316.77$)

66 Jul 74

ULBERT CALCIUM REPORT



GOOD	S
57 - 3100 - 2.5	
62 - 1600 - 3.0	
63 - 2500 - 3.5	
64 - 0600 - 3.0	
67 - 2100 - 3.5	

TOGRAM
ht - Plus
x - Minus

MT. WILSON

DELTAY=
DELTAX=

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

W E

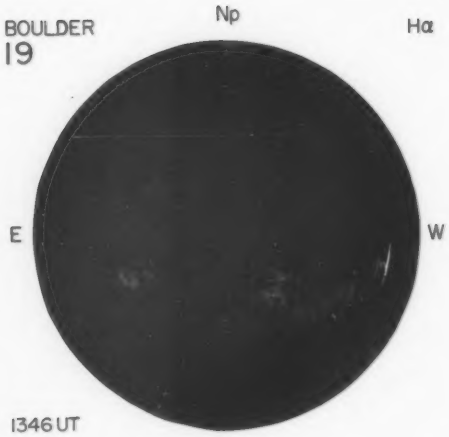
NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

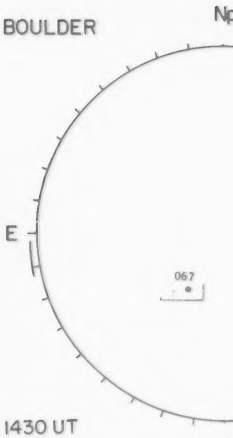
Sp

BOULDER
19



1346 UT

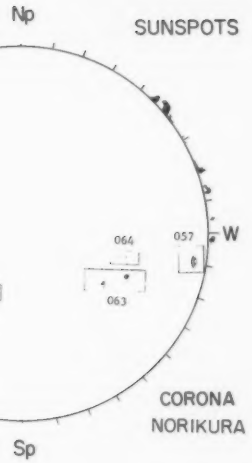
BOULDER



1430 UT

NELC LA POSTA

1724 UT


Np
SUNSPOTS
064
057
063
W
Sp
CORONA
NORIKURA

Np
2.0 CM
W
Sp
ANT. TEMP. UNIT 100° K

67
Jul 74

JULY 20, 1974 (P=5.

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULB

Np

E

W

E

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1210 UT

Sp

KITT PEAK

Np

MAGNETOG
Bright-
Dark-

E

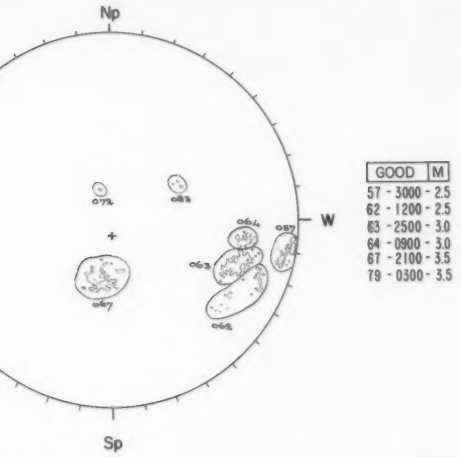
NO DATA

Sp

5.66, $B_o = 4.80$, $L_o = 303.54$)

68
Jul 74

ULBERT CALCIUM REPORT

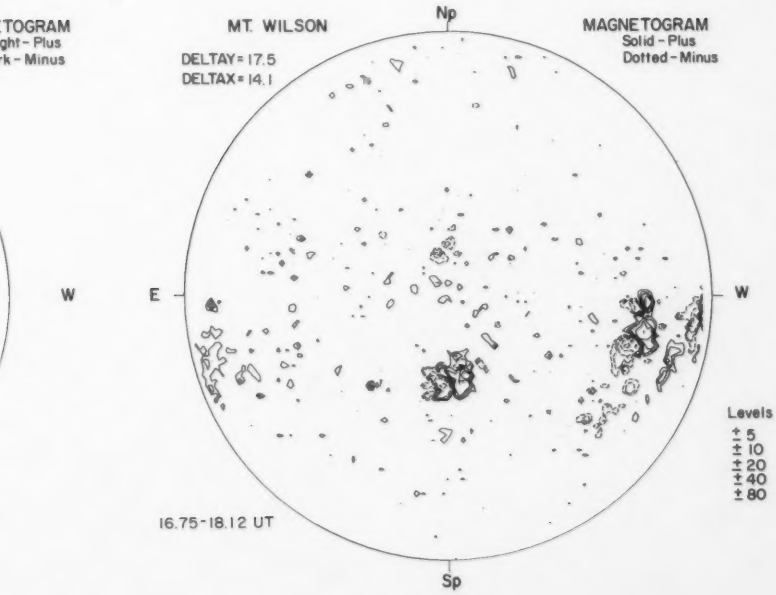


GOOD	M
57 - 3000 - 2.5	
62 - 1200 - 2.5	
63 - 2500 - 3.0	
64 - 0900 - 3.0	
67 - 2100 - 3.5	
79 - 0300 - 3.5	

TOGRAM
ght - Plus
rk - Minus

MT. WILSON
DELTAY = 17.5
DELTAX = 14.1

MAGNETOGRAM
Solid - Plus
Dotted - Minus



Levels
± 5
± 10
± 20
± 40
± 80

16.75 - 18.12 UT

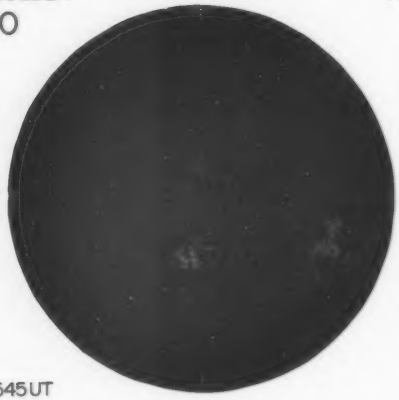
BOULDER
20

Np

Hα

E

W



1545UT

Sp

BOULDER

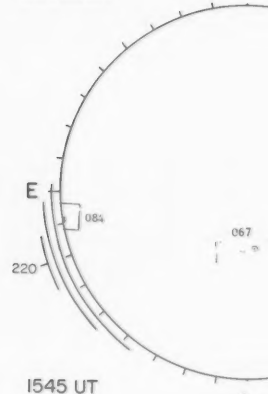
Np

E

084

067

220



1545 UT

Sp

NELC LA POSTA

Np

NO DAT

E

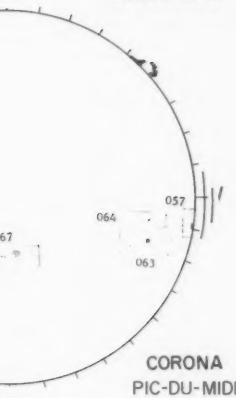
WEATHE

Sp

---- UT

Np

SUNSPOTS



CORONA
PIC-DU-MIDI

Sp

Np

2.0 CM

DATA

ATHER

W

Sp

ANT. TEMP. UNIT 100° K

69
Jul 74

JULY 21, 1974 (P = 6.

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULB

Np

E W

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1140 UT

Sp

KITT PEAK

Np

MAGNETOG
Bright -
Dark - M

E

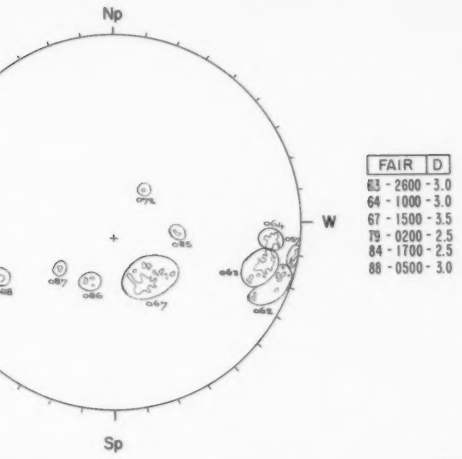
NO DATA

Sp

= 6.10, B_o = 4.89, L_o = 290.31)

Jul 74

ULBERT CALCIUM REPORT

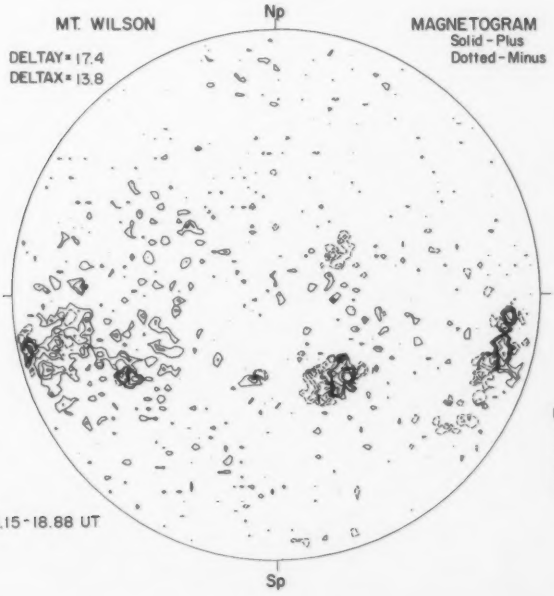


FAIR	D
63 - 2600 - 3.0	
64 - 1000 - 3.0	
67 - 1500 - 3.5	
79 - 0200 - 2.5	
84 - 1700 - 2.5	
88 - 0500 - 3.0	

TOGRAM
ght - Plus
k - Minus

W

MT. WILSON
DELTAY = 17.4
DELTAX = 13.8



MAGNETOGRAM
Solid - Plus
Dotted - Minus

Levels
± 5
± 10
± 20
± 40
± 80

18.15 - 18.88 UT

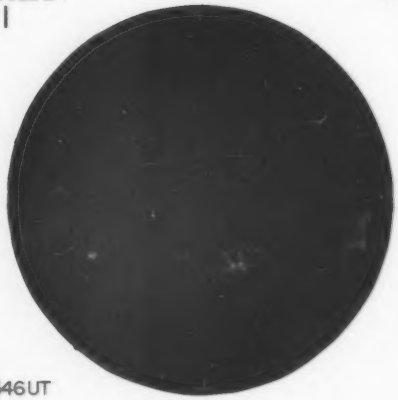
BOULDER
21

Np

Hα

E

W



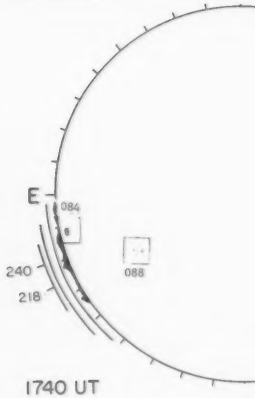
1546UT

Sp

BOULDER

Np

E



1740 UT

Sp

NELC LA POSTA

Np

NO DA

E

CALIBRA

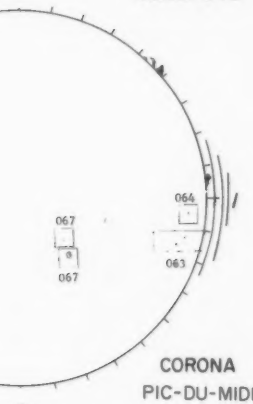
L

1834 UT

Sp

Np

SUNSPOTS



CORONA
PIC-DU-MIDI

Sp

Np

2.0 CM

DATA

BRATION

W

Sp

ANT. TEMP. UNIT 100° K

71
Jul 74

JULY 22, 1974 (P = 6.5

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

CATANIA

Np

E

W

E

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

0643 UT

Sp

KITT PEAK

Np

MAGNETOG
Bright -
Dark - M

E

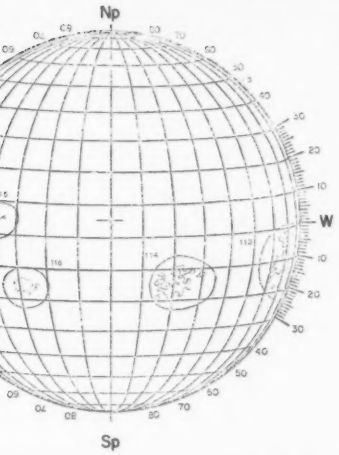
NO DATA

Sp

6.53, $B_o = 4.98$, $L_o = 277.08$)

72
Jul 74

CALCIUM REPORT



GOOD	GD
113-04542	---
114-02280	---
116-00924	---
115-00359	---
117-04539	---

TOGRAM
ght - Plus
k - Minus

MT. WILSON

DELTAY=
DELTAX=

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

W E

NO DATA

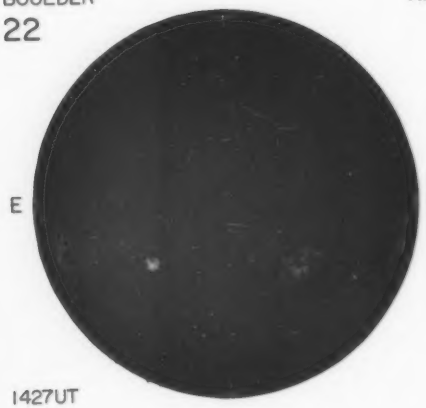
W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

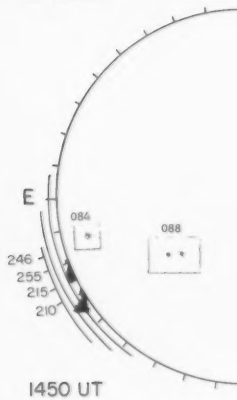
BOULDER

22



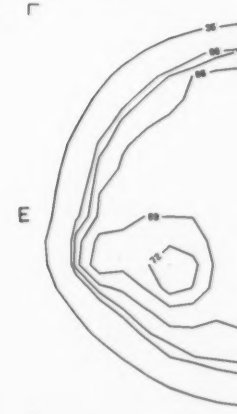
1427UT

BOULDER



1450 UT

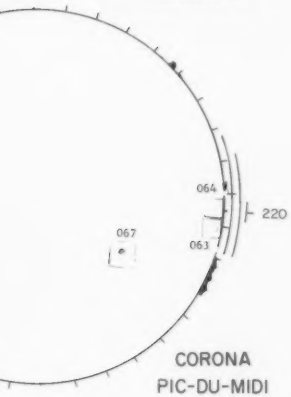
NELC LA POSTA



1824 UT

Np

SUNSPOTS



CORONA
PIC-DU-MIDI

Sp

2.0 CM

Np

Sp

ANT. TEMP. UNIT 100°K

73
Jul 74

JULY 23, 1974 (P=6

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HUL

Np

E

W

E

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1900 UT

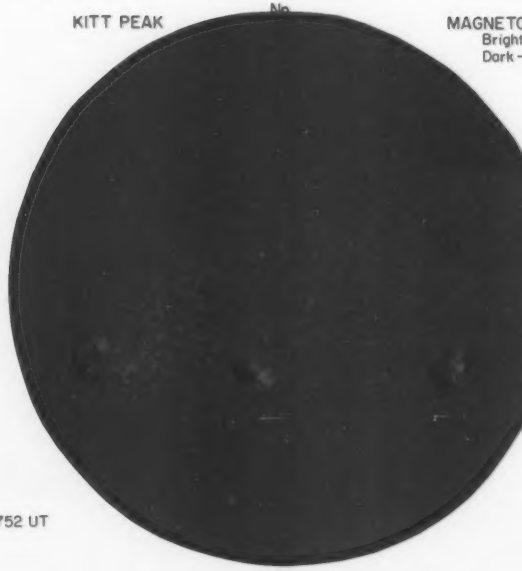
Sp

KITT PEAK

Np

MAGNETO
Bright
Dark -

E



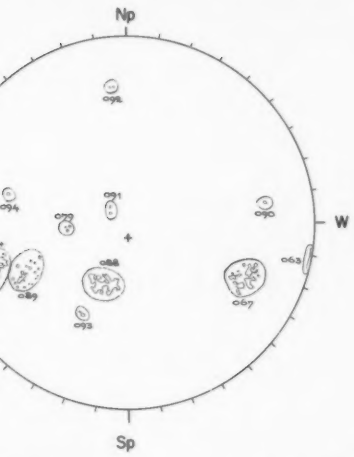
1752 UT

Sp

= 6.96, B_o = 5.06, L_o = 263.85)

74
Jul 74

HULBERT CALCIUM REPORT



FAIR	M
67 - 1300	- 3.0
84 - 2100	- 3.0
88 - 1500	- 3.5
95 - 1500	- 2.5

IETOGRAM
right - Plus
ark - Minus

MT. WILSON
DELTAY=
DELTAX=

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

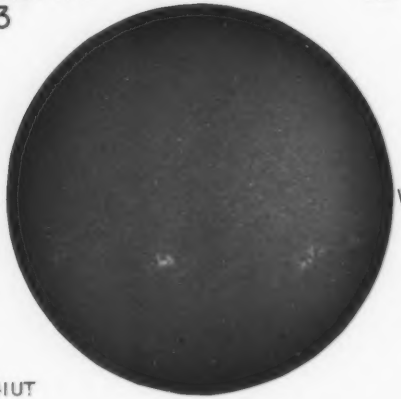
RAMEY AFB
23

Np

Hα

E

W



1141UT

Sp

BOULDER

E

084

088

222

224

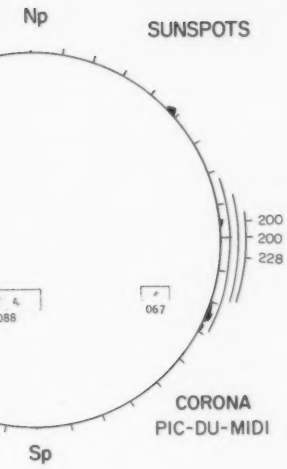
210

1600 UT

NELC LA POSTA

E

1839 UT


Np
SUNSPOTS
200
200
228
067
CORONA
PIC-DU-MIDI
Sp

2.0CM
Np
W
Sp
ANT. TEMP. UNIT 100°K

75
Jul 74

JULY 24, 1974 (P = 7.3

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULB

Np

E

W

E

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1315 UT

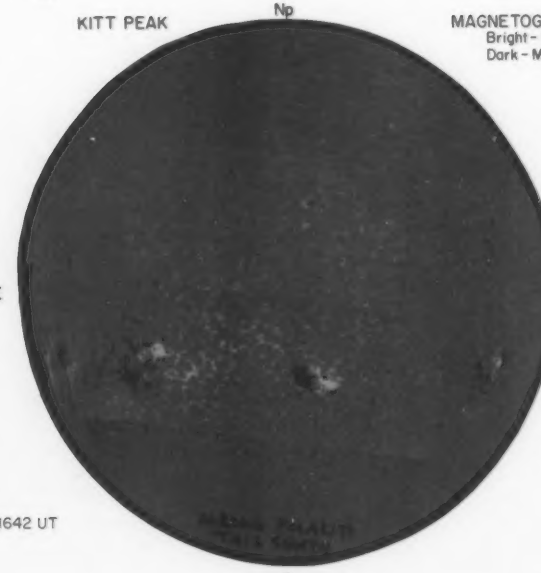
Sp

KITT PEAK

Np

MAGNETOG
Bright -
Dark - M

E



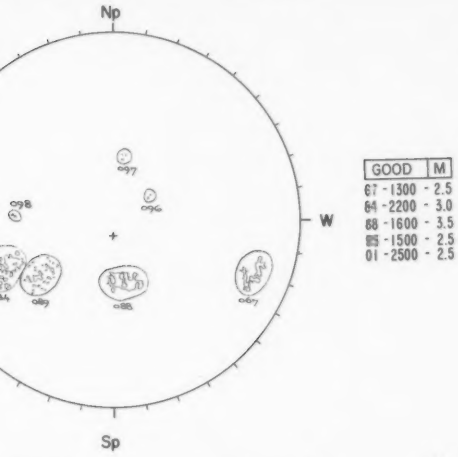
1642 UT

Sp

= 7.38, B_o = 5.15, L_o = 250.62)

76
Jul 74

ULBERT CALCIUM REPORT

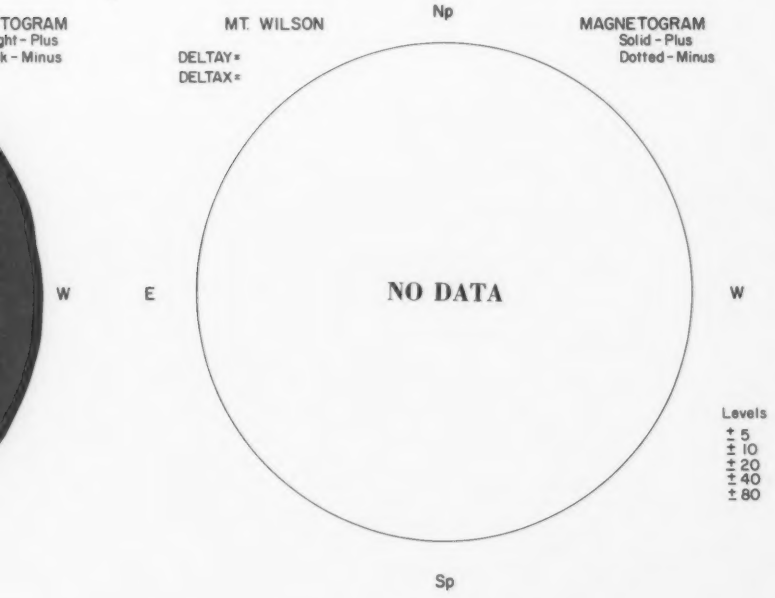


GOOD	M
67 - 1300	- 2.5
64 - 2200	- 3.0
68 - 1600	- 3.5
65 - 1500	- 2.5
01 - 2500	- 2.5

TOGRAM
ght - Plus
k - Minus

MT. WILSON
DELTAY=
DELTAX=

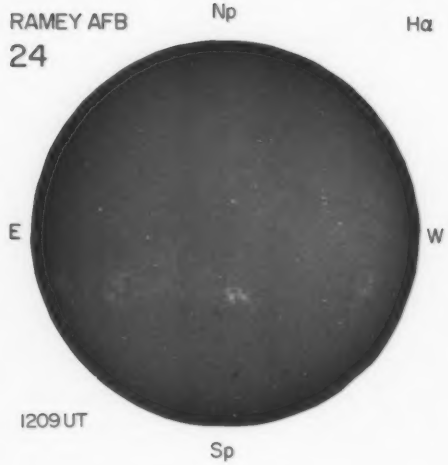
MAGNETOGRAM
Solid - Plus
Dotted - Minus



Levels
± 5
± 10
± 20
± 40
± 80

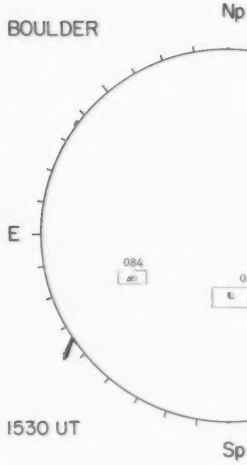
RAMEY AFB

24



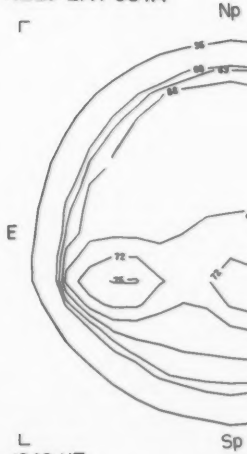
1209 UT

BOULDER



1530 UT

NELC LA POSTA



1849 UT

Np

SUNSPOTS

CORONA
NO DATA

Sp

2.0 CM

Np

Sp

ANT. TEMP. UNIT 100° K

77
Jul 74

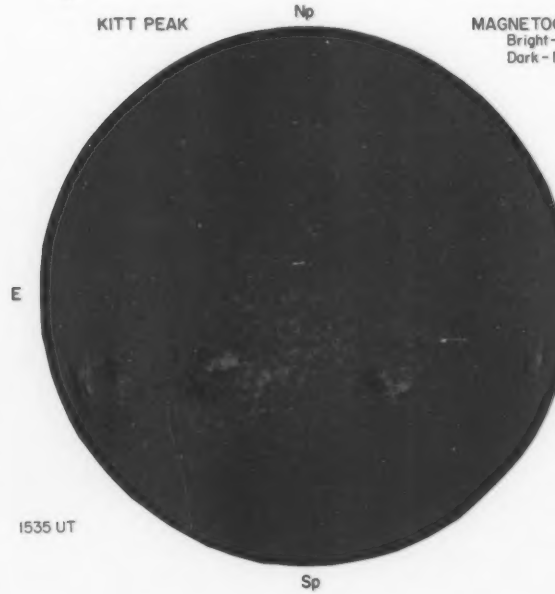
UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULB

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

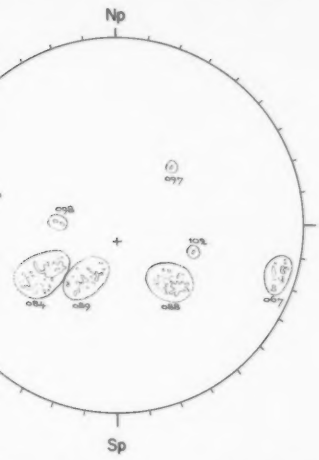
1400 UT



= 7.81, B_o = 5.23, L_o = 237.39)

78
Jul 74

HULBERT CALCIUM REPORT



GOOD	M
84 - 2200	- 3.0
88 - 1600	- 3.0
01 - 2500	- 2.5

ETOGRAM
ight - Plus
rk - Minus

MT. WILSON
DELTAY=
DELTAX=

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

W E

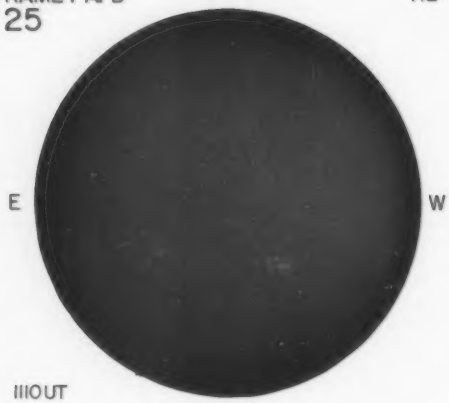
NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 80

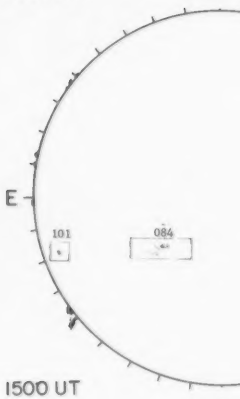
Sp

RAMEY AFB
25



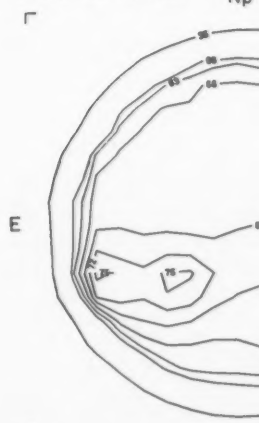
1110 UT

BOULDER



1500 UT

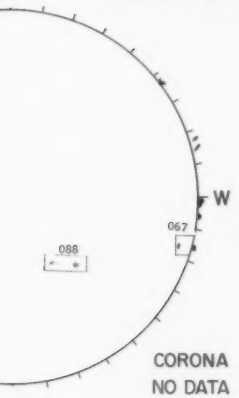
NELC LA POSTA



2133 UT

Np

SUNSPOTS



CORONA
NO DATA

Sp

2.0 CM

Np

Sp

ANT. TEMP. UNIT 100° K

79
Jul 74

JULY 26, 1974 (P = 8.

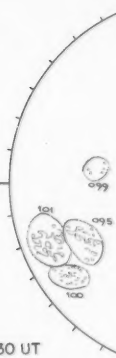
UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULB

Np

E W



Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1330 UT

Sp

KITT PEAK

Np

MAGNETOG
Bright-
Dark-M

E

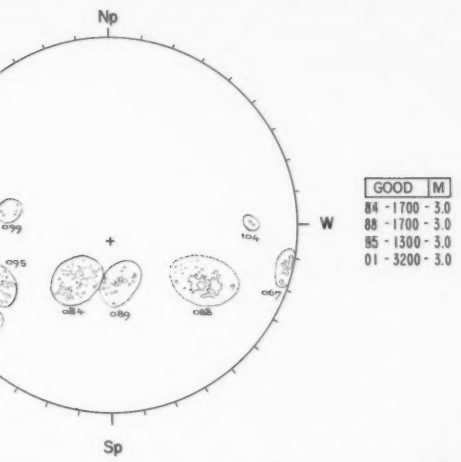
NO DATA

Sp

8.23, $B_o = 5.32$, $L_o = 224.16$)

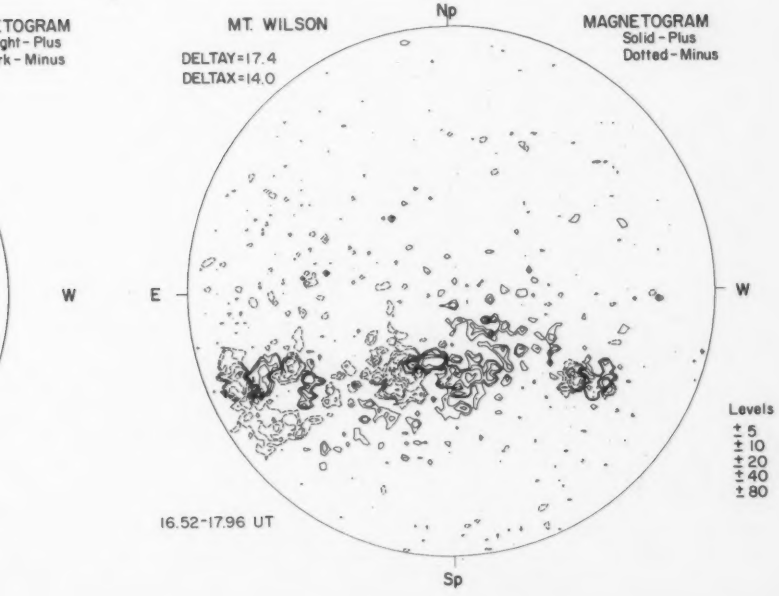
80
Jul 74

ULBERT CALCIUM REPORT

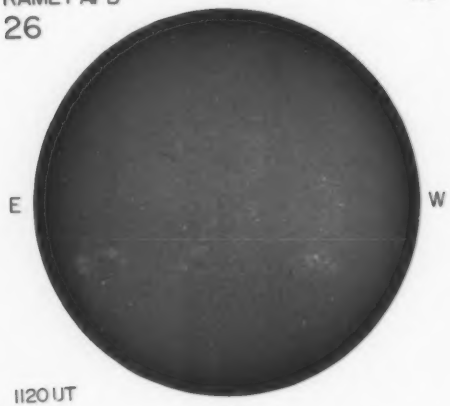


GOOD	M
84 - 1700 - 3.0	
88 - 1700 - 3.0	
85 - 1300 - 3.0	
01 - 3200 - 3.0	

TOGRAM
ght - Plus
k - Minus

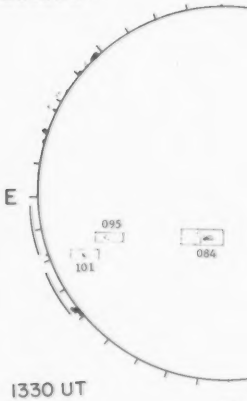


RAMEY AFB
26



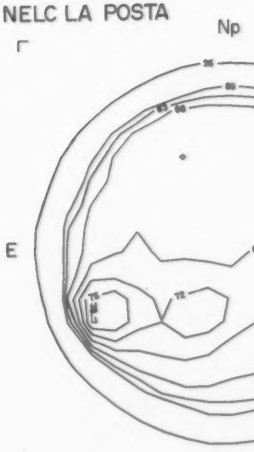
1120 UT

BOULDER



1330 UT

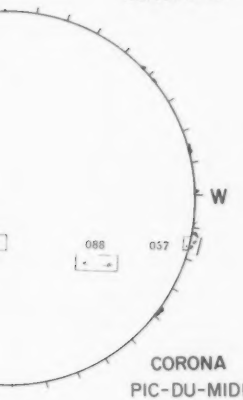
NELC LA POSTA



1915 UT

Np

SUNSPOTS



CORONA
PIC-DU-MIDI

Sp

2.0CM

Np

Sp

ANT. TEMP. UNIT 100° K

81
Jul 74

JULY 27, 1974 (P = 8.

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULB

Np

E

W

E

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1315 UT

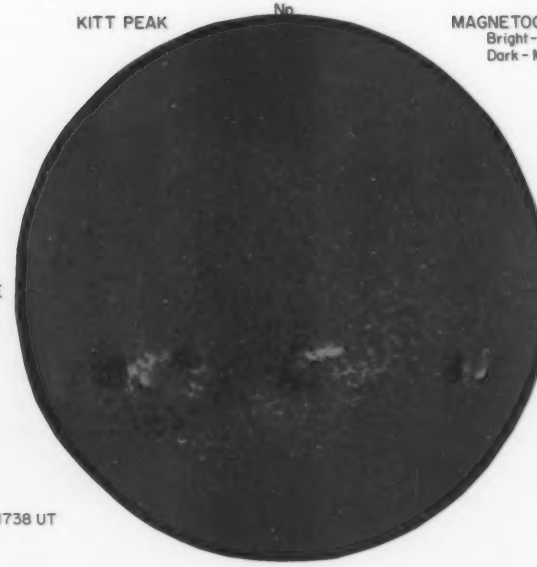
Sp

KITT PEAK

Np

MAGNETOG
Bright -
Dark - N

E



1738 UT

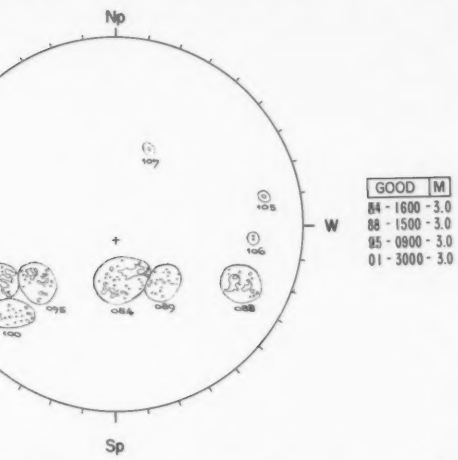
Sp

= 8.65, B_o = 5.40, L_o = 210.93)

82
Jul 74

ULBERT

CALCIUM REPORT

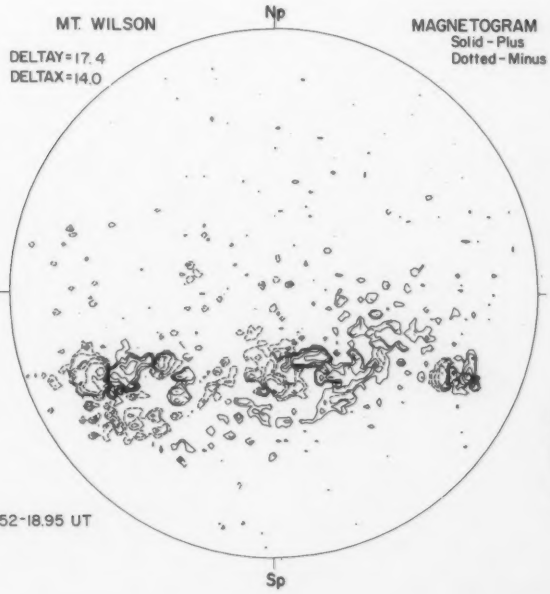


GOOD	M
84 - 1600 - 3.0	
88 - 1500 - 3.0	
95 - 0900 - 3.0	
01 - 3000 - 3.0	

TOGRAM
ght - Plus
rk - Minus

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0



MAGNETOGRAM
Solid - Plus
Dotted - Minus

Levels
± 5
± 10
± 20
± 40
± 80

17.52-18.95 UT

RAMEY AFB

27

Np

Hα

E

W

1119 UT

Sp

BOULDER

N

E

095

101

1515 UT

S

NELC LA POSTA

N

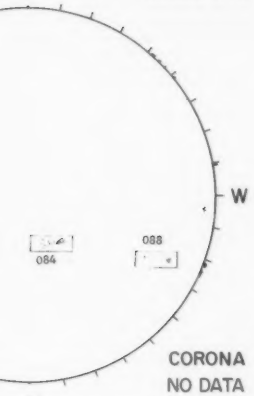
E

L

1952 UT

Np

SUNSPOTS



CORONA
NO DATA

Sp

2.0 CM

Np

Sp

ANT. TEMP. UNIT 100°K

83
Jul 74

JULY 28, 1974 (P=9

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HUL

Np

E W

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1145 UT

Sp

KITT PEAK

Np

MAGNETO
Bright
Dark-

E

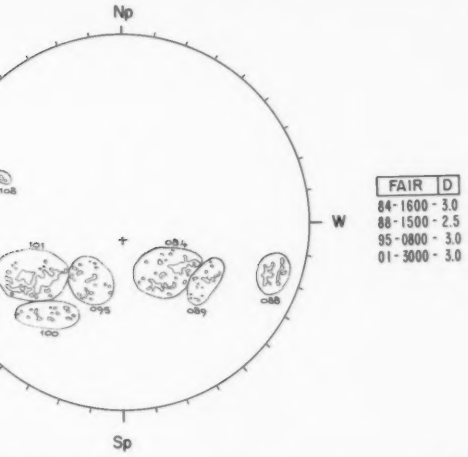
NO DATA

Sp

= 9.06, B_o = 5.48, L_o = 197.71)

84
Jul 74

HULBERT CALCIUM REPORT



FAIR	D
84 - 1600 -	3.0
88 - 1500 -	2.5
95 - 0800 -	3.0
01 - 3000 -	3.0

ETOGRAM
right - Plus
ark - Minus

MT. WILSON
DELTAY=
DELTAX=

MAGNETOGRAM
Solid - Plus
Dotted - Minus

W E

W

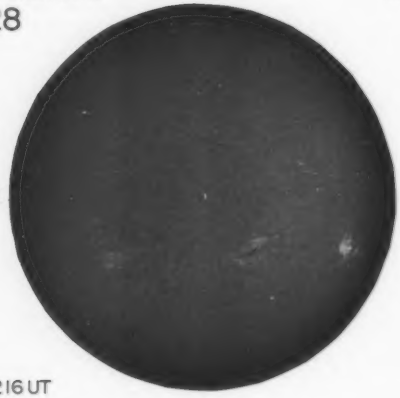
Levels
± 5
± 10
± 20
± 40
± 80

RAMEY AFB

28

Np

Hα



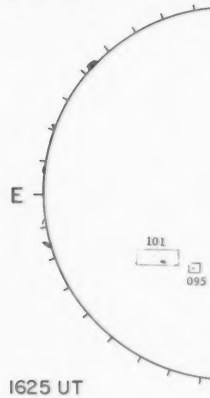
E

W

Sp

1216 UT

BOULDER



1625 UT

NELC LA POSTA

E

N

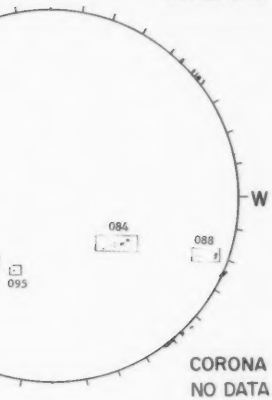
E

L

---- UT

Np

SUNSPOTS



CORONA
NO DATA

Sp

Np

2.0CM

NO DATA

EQUIPMENT

W

Sp

ANT. TEMP. UNIT 100°K

85
Jul 74

JULY 29, 1974 (P = 9

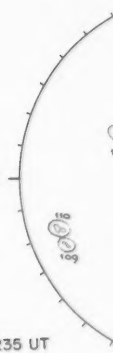
UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HUL

Np

E W E



Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1235 UT

Sp

KITT PEAK

Np

MAGNETO
Bright
Dark -

E

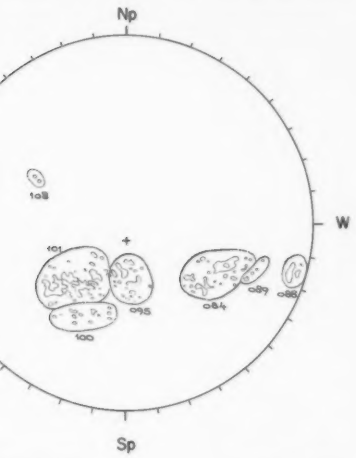
NO DATA

Sp

= 9.47, B_o = 5.56, L_o = 184.48)

86
Jul 74

-HULBERT CALCIUM REPORT



FAIR	D
84 - 1800 - 3.0	
95 - 0800 - 3.0	
01 - 2900 - 3.0	

NETOGRAM
right - Plus
ark - Minus

MT. WILSON

DELTAY=
DELTAX=

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

W E

NO DATA

W

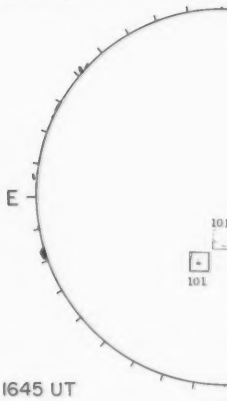
Levels
±5
±10
±20
±40
±80

Sp

RAMEY AFB
29

1140 UT

BOULDER



1645 UT

NELC LA POSTA

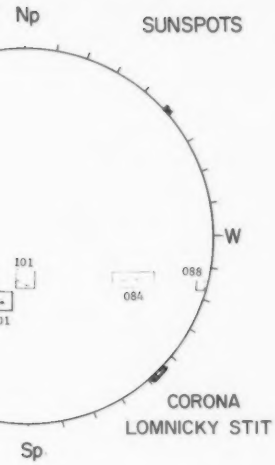
NO D

E

EQUIF

L

----UT



Np

2.0 CM

0 DATA

QUIPMENT

W

Sp

ANT. TEMP. UNIT 100° K

87
Jul 74

JULY 30, 1974 (P = 9.8

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

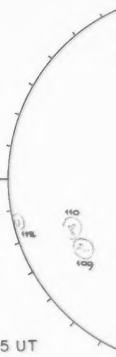
McMATH-HULB

Np

E

W

E



Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1145 UT

Sp

KITT PEAK

Np

MAGNETOG
Bright -
Dark - M

E

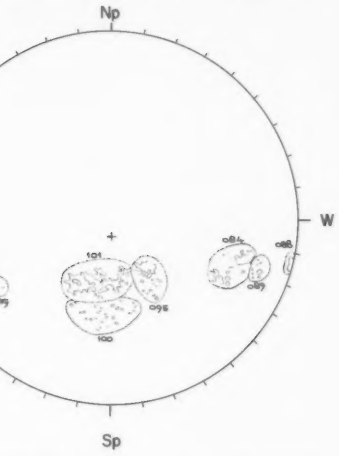
NO DATA

Sp

9.88, $B_o = 5.63$, $L_o = 171.25$)

88
Jul 74

ULBERT CALCIUM REPORT

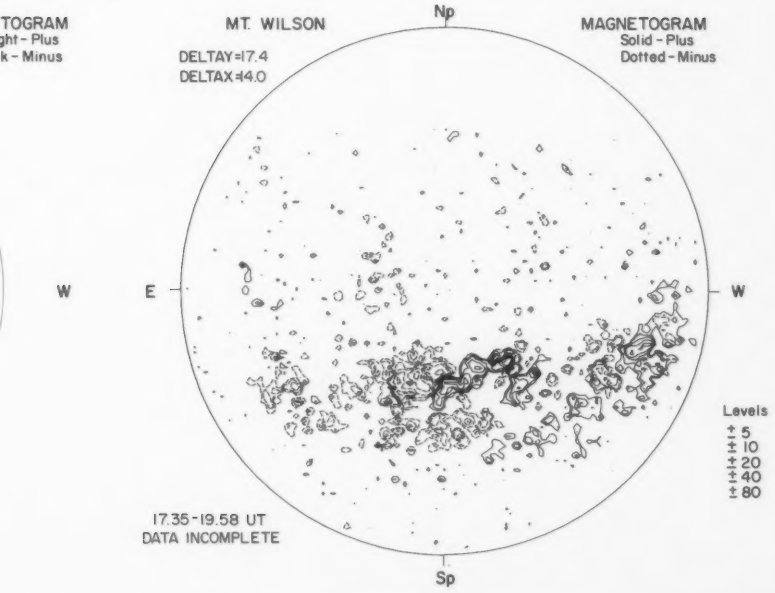


FAIR	D
84 - 1800 - 2.5	
95 - 1300 - 3.5	
01 - 3000 - 3.0	

TOGRAM
ght - Plus
k - Minus

MT. WILSON
DELTAY=17.4
DELTAX=4.0

MAGNETOGRAM
Solid - Plus
Dotted - Minus



Levels
± 5
± 10
± 20
± 40
± 80

17.35 - 19.58 UT
DATA INCOMPLETE

RAMEY AFB

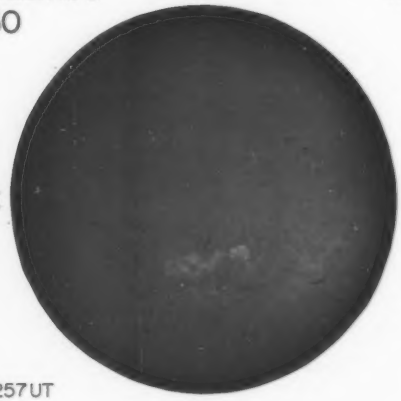
30

Np

Hα

E

W



1257 UT

Sp

BOULDER

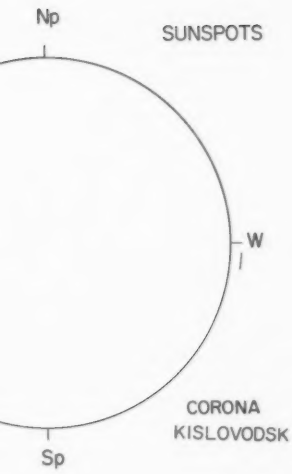
E

NO DATA

NELC LA POSTA

E

1823 UT


Np
SUNSPOTS
W
CORONA
KISLOVODSK
Sp

Np
2.0 CM
W
Sp
ANT. TEMP. UNIT 100°K

89
Jul 74

JULY 31. 1974 (P = 10.

UNIV. COLLEGE LONDON
LEICESTER UNIV.

X-RAY
OSO-5

McMATH-HULBE

Intensities in Units
of 10^{-6} ergs cm^{-2} sec^{-1}

1145 UT

Sp

KITT PEAK

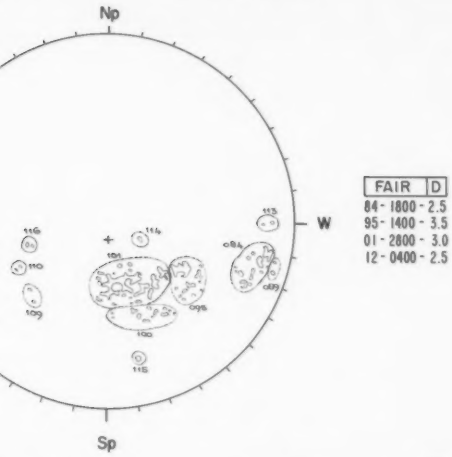
Np

MAGNETOG
Bright - F
Dark - M

10.29, $B_o = 5.71$, $L_o = 158.03$)

ULBERT CALCIUM REPORT

90
Jul 74

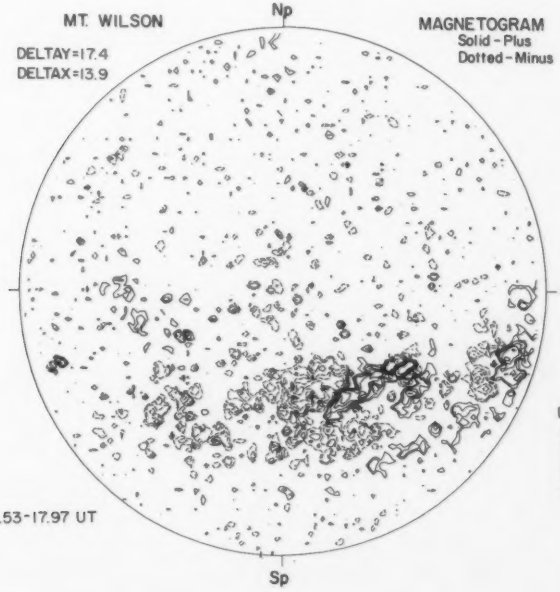


FAIR	D
84 - 1800 - 2.5	
95 - 1400 - 3.5	
01 - 2800 - 3.0	
12 - 0400 - 2.5	

TOGRAM
ht - Plus
k - Minus

MT. WILSON
DELTAY=17.4
DELTAX=13.9

MAGNETOGRAM
Solid - Plus
Dotted - Minus



Levels
± 5
± 10
± 20
± 40
± 80

16.53-17.97 UT

RAMEYAFB

31

Np

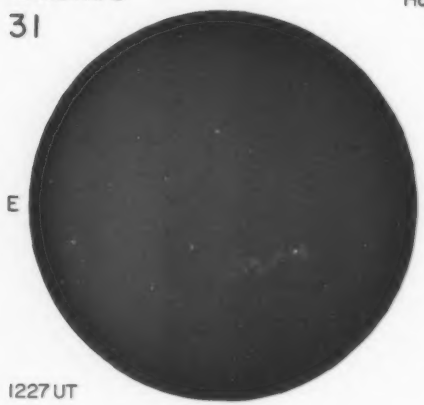
Hα

E

W

Sp

1227 UT



BOULDER

N

E

S

NO DATA

NELC LA POSTA

N

NO D

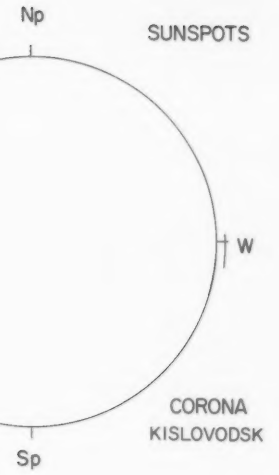
E

EQUI

S

L

---- UT



Np

2.0 CM

NO DATA

QUIPMENT

W

Sp

ANT. TEMP. UNIT 100° K

91
Jul 74

REGIONS OF SOLAR ACTIVITY

JULY 1974

MCMATH REGION 13030 CMP DATE 1.0 RETURN OF REGION 12972 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	6	23	13030	S08 E80	215	800	1.0									
74	6	24	13030	S10 E70	212	2200	1.5									
74	6	25	13030	S11 E60	208	3000	2.0									
74	6	26	13030	S12 E50	205	3600	2.0									
74	6	27	13030	S13 E40	202	3800	2.0									
74	6	28	13030	S12 E25	203	3800	2.0									
74	6	29	13030	S12 E15	201	3800	2.0	19428	S10 E12	202	(BF)	2				
74	6	30	13030	S12 E05	197	4000	2.0	19428	S09 W04	203	(B)	2	R	10	7	CRO
74	7	1	13030	S12 W10	198	4000	2.0	19428	S10 W16	202	(BP)	5	R	80	5	DSO
74	7	2	13030	S12 W25	195	4000	3.0	19428	S10 W31	202	(BP)	4	R	110	21	DSI
74	7	3	13030	S12 W35	195	4000	3.0	19428	S10 W45	204	(BP)	5	H	190	19	DSI
74	7	4	13030	S12 W50	197	4000	3.0	19428	S09 W59	203	(BP)	4	H	310	20	DKI
74	7	5	13030	S12 W60	195	4000	3.0	19428	S09 W71	203	(BP)	4	R	180	6	DAO
74	7	6	13030	S12 W65	187	3700	3.0	19428	S09 W88	208	AP					
74	7	7	13030	S20 W70	178	1500	1.0									

MCMATH REGION 13035 CMP DATE 1.0

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	6	25	13035	N13 E70	198	300	2.5									
74	6	26	13035	N12 E58	197	100	1.0									

MCMATH REGION 13044 CMP DATE 1.5

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	6	29	13044	N24 E26	190	100	1.0									
74	6	30	13044	N24 E13	189	100	1.0									

MCMATH REGION 13037 CMP DATE 2.7 RETURN OF REGION 12995 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	6	26	13037	S11 E83	172	1600	2.0	19424	S11 E75	179	(AP)	2	R	50	1	HSX
74	6	27	13037	S10 E70	172	1900	2.0	19424	S11 E60	179	(AP)	3	R	40	1	HSX
74	6	28	13037	S10 E55	173	1700	2.5	19424	S11 E48	179	(AP)	4	R	50	1	HSX
74	6	29	13037	S10 E42	174	1700	2.5	19424	S11 E35	179	(AP)	4	R	30	1	HSX
74	6	30	13037	S10 E29	173	1700	2.5	19424	S11 E20	179	(BP	4	R	30	3	CSO
74	7	1	13037	S10 E15	173	1500	2.5	19424	S11 E10	176	(AP)	4	R	30	1	HSX
74	7	2	13037	S10 W02	172	1400	2.0	19424	S11 W04	175	(AP)	3	R	30	1	HSX
74	7	3	13037	S10 W12	172	1200	2.0	19424	S10 W18	177	(AP)	2	H	30	3	CRO
74	7	4	13037	S10 W25	172	1300	2.5	19424	S12 W29	173	(B)	1	H	10	3	BXO
74	7	5	13037	S11 W37	172	1700	3.0	19424	S12 W41	173	(BP)	2	R	0	2	BXO
74	7	6	13037	S11 W52	174	2200	2.5	19424	S12 W53	67	(BF)	3				
74	7	7	13037	S11 W65	173	2100	3.0	19424	S12 W66	172	(BP)	4				
74	7	8	13037	S11 W78	173	900	2.5	19424	S13 W80	173	(AP)	2				

MCMATH REGION 13045 CMP DATE 3.1

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	6	30	13045	N17 E34	168	100	1.0									

MCMATH REGION 13042 CMP DATE 4.0

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	6	28	13042	N42 E72	156	300	2.0									

REGIONS OF SOLAR ACTIVITY

JULY 1974

MCMATH REGION 13043 — CMP DATE 4.1 — RETURN OF REGION 12977 — ROTATION 2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	6	27						19426	S17 E88	151	AP					
74	6	28	13043	S16 E75	153	1500	3.5	19427	S15 E67	160	(BP)	2				
74	6							19426	S17 E76	151	(AP)	3	R	20	1	HSX
74	6	29	13043	S14 E62	154	2700	3.5	19427	S15 E56	158	(D)	4	R	170	15	EAI
74	6							19426	S18 E63	151	(AP)	4	R	30	1	HSX
74	6	30	13043	S15 E48	154	3200	3.5	19427	S14 E39	160	(D)	4	R	230	39	EAI
74	6							19426	S18 E48	151	(AP)	3				
74	7	1	13043	S14 E34	154	4100	3.5	19429	S21 E26	160	(BP)	1				
74	7							19427	S15 E27	159	(D)	5	R	450	30	FKI
74	7							19426	S17 E37	149	(AP)	4	R	60	1	HSX
74	7	2	13043	S14 E17	153	4200	3.5	19427	S14 E13	158	(D)	6	R	600	37	EKI
74	7							19426	S17 E23	148	(AP)	4	R	50	1	HSX
74	7	3	13043	S14 E07	153	4300	3.5	19427	S14 E01	158	(D)	6	M	940	55	FKC
74	7							19426	S17 E10	149	(AP)	3	M	60	1	HSX
74	7	4	13043	S14 W06	153	4500	4.0	19427	S14 W14	158	(D)	6	M	1020	58	FKC
74	7							19426	S18 W04	148	(AP)	3	M	30	1	HAX
74	7	5	13043	S14 W20	155	5000	3.5	19427	S14 W27	159	(D)	6	R	900	57	FKC
74	7							19426	S18 W16	148	(AP)	3	R	10	1	HSX
74	7	6	13043	S14 W33	155	5000	3.5	19427	S14 W40	160	(D)	5	R	720	70	EKC
74	7							19426	S17 W28	148	(AP)	3	R	10	1	HRX
74	7	7	13043	S14 W46	154	5300	3.5	19427	S14 W53	159	(D)	4				
74	7							19426	S17 W42	148	(AP)	3				
74	7	8	13043	S14 W60	155	5200	4.0	19427	S15 W65	158	(D)	5	B	470	27	EKC
74	7							19426	S17 W53	146	(AP)	1	B	0	1	BRX
74	7	9	13043	S13 W73	155	5100	3.5	19427	S14 W76	157	(D)	3	B	390	17	EKC
74	7	10	13043	S14 W86	154	2000	2.5	19427	S14 W88	154						

MCMATH REGION 13047 — CMP DATE 5.2 — RETURN OF REGION 12981* — ROTATION 2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	6	30	13047	N09 E64	138	100	1.0									
74	7	1	13047	N09 E50	138	100	1.5									
74	7	2	13047	N09 E32	138	100	1.0									

MCMATH REGION 13046 — CMP DATE 5.5 — RETURN OF REGION 12981* — ROTATION 2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	6	30	13046	N03 E66	136	100	1.0									
74	7	1	13046	N04 E53	135	100	1.5									
74	7	2	13046	N04 E35	135	200	1.5									
74	7	3	13046	N04 E25	135	200	1.5									
74	7	4	13046	N03 E12	135	100	1.0									
74	7	5	13046	N03 W01	136	100	1.0									
74	7	6	13046	N03 W14	136	100	1.0									
74	7	7	13046	N03 W27	135	200	1.5									
74	7	8	13046	N03 W40	135	200	1.0									
74	7	9	13046	N03 W54	136	100	1.0									
74	7	10	13046	N03 W70	138	100	1.0									

MCMATH REGION 13051 — CMP DATE 6.1

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	4						19430	S16 E17	127	(BP)	2				
74	7	5	13051	S15 E08	127	700	3.0	19430	S15 E05	127	(BP)	4	R	20	10	CRO
74	7	6	13051	S15 W05	127	1000	3.0	19430	S12 W08	128	(BP)	4	R	70	12	DAO
74	7	7	13051	S15 W18	126	1000	3.0	19430	S14 W22	128	(BP)	3				
74	7	8	13051	S14 W33	128	1000	2.5	19430	S14 W36	129	(AP)	3	B	10	5	BXO
74	7	9	13051	S14 W46	128	1200	3.0	19430	S13 W51	132	(AP)	3	B	10	2	BXO
74	7	10	13051	S14 W60	128	1300	2.5		S14 W63				B	0	1	AXX
74	7	11	13051	S14 W72	128	1100	2.0									
74	7	12	13051	S14 W88	130	200	1.0									

*An asterisk beside the "Return of Region" number indicates that the new region is only part of the area of the old region.

REGIONS OF SOLAR ACTIVITY

JULY 1974

MCMATH REGION 13049 CMP DATE 6.3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	3	13049	N59 E36	124	100	1.0									
74	7	4	13049	N60 E19	128	100	1.0									
74	7	5	13049	N60 E11	124	100	1.0									

MCMATH REGION 13058 CMP DATE 6.9

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	9	13058	S09 W35	117	200	2.0	19433	S09 W38	119	(AP)	2	8	0	1	AXX
74	7	10	13058	S09 W49	117	100	1.0									
74	7	11	13058	S09 W62	118	200	1.0									

MCMATH REGION 13053 CMP DATE 7.8

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	8	13053	N12 W10	105	400	1.5	19431	N10 W09	102	(AP)	1	8	0	1	AXX
74	7	9	13053	N12 W23	105	300	1.5									
74	7	10	13053	N12 W37	105	200	1.0									
74	7	11	13053	N12 W48	104	100	1.0									

MCMATH REGION 13056 CMP DATE 10.5

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	8	13056	N18 E26	69	200	1.5									

MCMATH REGION 13050 CMP DATE 10.9 RETURN OF REGION 12993 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	4	13050	N09 E82	65	400	1.5									
74	7	5	13050	N09 E74	61	700	1.5									
74	7	6	13050	N08 E60	62	900	2.0									
74	7	7	13050	N08 E46	62	1000	2.5									
74	7	8	13050	N09 E30	65	900	2.0									
74	7	9	13050	N09 E18	64	1000	2.0									
74	7	10	13050	N09 E05	63	800	2.0									
74	7	11	13050	N09 W07	63	800	2.5	19434	N09 W07	61	(A)	2				
74	7	12	13050	N09 W23	65	1000	2.5									
74	7	13	13050	N09 W36	65	800	2.0									
74	7	14	13050	N09 W48	64	900	2.0									
74	7	15	13050	N09 W61	63	800	1.5									
74	7	16	13050	N09 W75	63	700	1.0									

MCMATH REGION 13065 CMP DATE 11.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	13	13065	S50 W30	59	100	1.0									

MCMATH REGION 13068 CMP DATE 11.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	15	13068	S14 W57	59	400	2.0	19438	S14 W59	58	(AP)	1	8	0	1	AXX
74	7	16	13068	S14 W71	59	500	2.5									
74	7	17	13068	S14 W83	60	300	2.5									

REGIONS OF SOLAR ACTIVITY

JULY 1974

MCMATH REGION 13059 CMP DATE 12.4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	9	13059	N01 E40	42	200	2.5									
74	7	10	13059	N01 E25	43	100	1.5									
74	7	11	13059	N01 E12	44	100	2.0									

MCMATH REGION 13060 CMP DATE 12.7

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	10	13060	S28 E28	40	100	1.5									

MCMATH REGION 13061 CMP DATE 13.4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	10	13061	N14 E38	30	100	1.0									
74	7	11	13061	N14 E25	31	100	1.0									

MCMATH REGION 13069 CMP DATE 13.5

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	15	13069	S19 W27	29	100	1.5									

MCMATH REGION 13070 CMP DATE 15.0

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	15	13070	S21 W07	9	100	1.5									

MCMATH REGION 13057 CMP DATE 15.2

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	8	13057	S08 E88	7	900	2.5	19432	S08 E80	13	(AP)	4	B	340	3	HHX
74	7	9	13057	S08 E75	7	2100	2.5	19432	S08 E67	14	(AP)	5	B	400	7	CHO
74	7	10	13057	S08 E61	7	2700	3.0	19432	S09 E54	12	(BP)	5	B	420	14	CHO
74	7								S08 E60				B	10	7	BXO
74	7	11	13057	S08 E49	7	3200	3.0	19432	S09 E41	13	(BP)	5	B	320	9	CHO
74	7								S08 E48				B	10	3	BXO
74	7	12	13057	S08 E36	6	3300	3.0	19432	S09 E28	12	(BP)	5	B	550	10	CHO
74	7								S08 E31				B	10	5	BXO
74	7	13	13057	S08 E22	7	3200	3.0	19432	S10 E15	11	(BP)	6	B	550	8	CHO
74	7								S08 E21				B	10	4	BXO
74	7	14	13057	S08 E10	6	3500	3.0	19432	S10 E01	12	BP		B	600	23	CHO
74	7								S08 E06				B	0	3	BXO
74	7								S13 E11				B	0	4	AXX
74	7	15	13057	S08 W05	7	3300	3.0	19432	S09 W16	15	(AP)	6	B	520	22	CHO
74	7								S10 W05				B	0	7	BXO
74	7								S11 E01				B	0	2	AXX
74	7	16	13057	S08 W19	7	3300	2.5	19432	S08 W28	16	(AP)	6	B	520	22	CHO
74	7	17	13057	S08 W31	8	3200	3.0	19432	S08 W41	16	(BP	6	B	440	8	HHX
74	7								S10 W30				B	0	3	AXX
74	7								S11 W24				B	0	1	AXX
74	7	18	13057	S08 W46	9	3200	3.0	19432	S07 W53	16	(AP)	6	B	330	2	HHX
74	7	19	13057	S09 W60	10	3100	2.5	19432	S08 W65	15	(AP)	6	B	350	2	HHX
74	7	20	13057	S09 W73	11	3000	2.5	19432	S08 W80	17	(AP)	4	B	350	2	HHX
74	7	21	13057	S09 W81	5	800	1.0									

REGIONS OF SOLAR ACTIVITY

JULY 1974

MCMATH REGION 13078 CMP DATE 15.2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	18	13078	S19 W45	8	100	1.5									
74	7	19	13078	S19 W58	8	200	1.0									

MCMATH REGION 13062 CMP DATE 16.8 RETURN OF REGION 13002 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	10	13062	S17 E80	349	800	1.5									
74	7	11	13062	S17 E72	345	1000	2.5									
74	7	12	13062	S17 E60	343	1600	1.5									
74	7	13	13062	S17 E46	344	1600	2.0									
74	7	14	13062	S17 E32	345	1500	2.5									
74	7	15	13062	S18 E17	346	1600	2.5									
74	7	16	13062	S18 E03	345	1800	2.0									
74	7	17	13062	S17 W10	347	1800	2.0									
74	7	18	13062	S17 W23	346	1600	2.5		S14 W29			B		0	1	AXX
74	7	19	13062	S17 W36	346	1600	3.0									
74	7	20	13062	S17 W49	347	1200	2.5									
74	7	21	13062	S17 W62	346	700	1.0									

MCMATH REGION 13066 CMP DATE 17.1

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	14	13066	N07 E35	342	100	1.0									

MCMATH REGION 13074 CMP DATE 17.2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	15						19439	N06 E25	335	BF					
74	7	17	13074	N06 W04	341	200	2.8	19439	N07 W04	339	(B)	1	B	0	3	BXO
74	7	18	13074	N07 W18	341	200	3.0									

MCMATH REGION 13063 CMP DATE 17.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	12	13063	S12 E67	336	500	3.0									
74	7	13	13063	S12 E53	337	900	3.0	19435	S12 E48	339	(BP)	3	B	0	3	BXO
74	7	14	13063	S12 E39	338	800	3.0	19435	S12 E33	341	BP					
74	7	15	13063	S11 E23	340	1000	3.5	19435	S11 E20	340	(BF)	4	B	20	37	CRI
74	7	16	13063	S11 E09	339	1400	3.5	19435	S11 E09	339	(BF)	5	B	300	42	DSI
74	7	17	13063	S11 W04	341	1600	3.5	19435	S10 W05	340	(B)	4	B	220	43	DAI
74	7	18	13063	S11 W17	340	2700	3.5	19435	S10 W17	340	(B)	4	B	120	49	DAO
74	7	19	13063	S11 W30	340	2500	3.5	19435	S11 W29	339	(BP)	3	B	50	12	DAO
74	7	20	13063	S10 W43	341	2500	3.0	19435	S11 W45	342	(BP)	3	B	40	11	CSO
74	7	21	13063	S10 W56	340	2600	3.0	19435	S11 W58	341	(BP)	3	B	40	11	CAO
74	7	22						19435	S11 W72	342	(BP)	2	B	20	3	BXO
74	7	23	13063	S10 W86	340	900	1.0									

MCMATH REGION 13064 CMP DATE 17.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	13	13064	S05 E56	334	200	1.5									
74	7	14	13064	S04 E40	337	400	2.5	19436	S05 E35	339	AP		B	0	2	BXO
74	7	15	13064	S04 E25	338	500	2.5	19436	S05 E21	339	(B)	2	B	0	2	BXO
74	7	16	13064	S04 E09	339	400	3.5	19436	S04 E08	340	(BP	2	B	0	2	BXO
74	7	17	13064	S04 W02	339	500	2.5	19436	S03 W03	338	(B)	1	B	0	4	BXO
74	7	18	13064	S04 W16	339	600	2.0	19436	S05 W14	337	AF					
74	7	19	13064	S04 W30	340	600	3.0	19436	S04 W34	344	(	2	B	0	7	BXO
74	7	20	13064	S04 W45	343	900	3.0	19436	S04 W46	343	(BP	2	B	10	5	BXO
74	7	21	13064	S04 W58	342	1000	3.0	19436	S04 W58	341	(BP	1	B	0	2	AXX
74	7	22						19436	S03 W75	345	(AP)	2	B	10	1	AXX

REGIONS OF SOLAR ACTIVITY

JULY 1974

MCMATH REGION 13071 CMP DATE 18.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	15	13071	S06 E43	320	200	1.0								

MCMATH REGION 13083 CMP DATE 18.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	20	13083	N16 W23	321	100	1.5								

MCMATH REGION 13075 CMP DATE 19.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	17	13075	S05 E25	312	200	1.5								

MCMATH REGION 13073 CMP DATE 20.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	16	13073	N28 E45	303	100	1.5								

MCMATH REGION 13085 CMP DATE 20.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	21	13085	N02 W20	304	200	1.5								

MCMATH REGION 13090 CMP DATE 20.2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	23	13090	N09 W48	302	100	1.0								

MCMATH REGION 13072 CMP DATE 20.7 RETURN OF REGION 13015 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	15	13072	N13 E69	294	300	1.0								
74	7	16	13072	N12 E55	293	400	1.0								
74	7	17	13072	N12 E43	294	400	1.0								
74	7	19	13072	N12 E14	296	300	1.0								
74	7	20	13072	N14 E03	295	100	2.0								
74	7	21	13072	N14 W10	294	100	1.5								

MCMATH REGION 13076 CMP DATE 20.7

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	17	13076	S27 E43	294	200	1.0								

MCMATH REGION 13067 CMP DATE 20.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	14	13067	S12 E86	291	700	2.5	19437	S14 E79	295	AP		8	100	1 HSX
74	7	15	13067	S13 E70	293	1000	2.0	19437	S13 E62	298	(AP)	3	8	110	3 CSO
74	7	16	13067	S13 E54	294	1500	2.5	19437	S13 E51	297	(AP)	4	8	110	3 CSO

(cont'd)

REGIONS OF SOLAR ACTIVITY

JULY 1974

(cont'd)

74	7	17	13067	S12 E43	294	1400	3.0	19437	S13 E41	294	(BP)	4	B	100	7	CSO
74	7	18	13067	S13 E30	293	1800	3.5	19437	S13 E28	295	(BP)	4	B	100	22	CSO
74	7								S06 E21				B	0	1	AXX
74	7	19	13067	S13 E16	294	2100	3.5	19437	S13 E15	295	(BP)	3	B	90	14	CSO
74	7	20	13067	S14 E04	294	2100	3.5	19437	S14 E02	295	(BP)	4	B	90	13	CSO
74	7	21	13067	S14 W09	293	1500	3.5	19441	S09 W12	295	(A)	2	B	0	1	AXX
74	7							19437	S14 W11	294	(BP)	4	B	90	2	HSX
74	7	22						19437	S13 W28	298	(AP)	4	B	90	2	HSX
74	7	23	13067	S14 W40	294	1300	3.0	19437	S13 W41	298	(AP)	4	R	40	1	HSX
74	7	24	13067	S14 W50	294	1300	2.5	19437	S13 W55	299	(AP)	3	B	40	2	HSX
74	7	25	13067	S14 W64	295	1200	2.0	19437	S12 W69	298	(AP)	4	B	40	1	HSX
74	7	26	13067	S14 W77	294	1100	1.5	19437	S12 W80	296	AP		B	40	2	HSX

MCMATH REGION 13081 CMP DATE 21.7

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	19	13081	N67 E28	282	200	1.5									

MCMATH REGION 13086 CMP DATE 22.0

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	21	13086	S13 E07	277	200	2.0									

MCMATH REGION 13087 CMP DATE 22.8

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	21	13087	S09 E17	267	200	1.5									

MCMATH REGION 13104 CMP DATE 22.8

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	26	13104	N04 W50	267	200	1.5									

MCMATH REGION 13077 CMP DATE 23.3

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	17	13077	N07 E77	260	200	1.0									

MCMATH REGION 13105 CMP DATE 23.4

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	27	13105	N13 W55	259	100	1.0									

MCMATH REGION 13096 CMP DATE 23.7

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	24	13096	N12 W11	255	100	1.0									

MCMATH REGION 13102 CMP DATE 23.8

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	25	13102	S04 W24	255	100	1.0									

REGIONS OF SOLAR ACTIVITY

JULY 1974

MCMATH REGION 13106 CMP DATE 23.9

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	27	13106	S01 W48	252	100	1.0									

MCMATH REGION 13091 CMP DATE 24.2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	23	13091	N08 E05	249	100	1.0									

MCMATH REGION 13097 CMP DATE 24.2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	24	13097	N25 W04	248	100	1.0									
74	7	25	13097	N24 W17	248	100	1.0									

MCMATH REGION 13092 CMP DATE 24.4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	23	13092	N51 E08	246	100	1.0									

MCMATH REGION 13088 CMP DATE 24.5

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	21	13088	S14 E39	245	500	3.0	19442	S14 E38	245	(B)	2	B	20	13	CRI
74	7	22						19442	S13 E24	246	(BP)	4	B	90	49	DAI
74	7	23	13088	S14 E09	245	1500	3.5	19442	S14 E09	248	(B)	4	R	200	31	DAI
74	7	24	13088	S14 W04	248	1600	3.5	19442	S15 W04	248	(B)	4	B	140	32	DAO
74	7	25	13088	S14 W17	248	1600	3.0	19442	S14 W20	249	(BP)	4	B	190	26	DAO
74	7	26	13088	S14 W31	248	1700	3.0	19442	S15 W32	248	(BP)	4	B	150	18	DAO
74	7	27	13088	S14 W44	248	1500	3.0	19442	S15 W45	248	(BP)	4	B	100	6	CSO
74	7	28	13088	S14 W57	249	1500	2.5	19442	S15 W64	250	(BP)	4	B	110	3	CSO
74	7	29	13088	S14 W70	249	1200	2.0	19442	S15 W80	257	(AP)	3	B	100	1	HSX
74	7	30	13088	S14 W83	249	1000	2.0									

MCMATH REGION 13080 CMP DATE 24.6

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	19	13080	N45 E66	244	100	1.5									

MCMATH REGION 13093 CMP DATE 25.0

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	23	13093	S25 E16	238	100	2.0									

MCMATH REGION 13079 CMP DATE 25.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	18	13079	N12 E28	295	300	1.0									
74	7	19	13079	N05 E79	231	200	1.5									
74	7	20	13079	N05 E65	233	300	3.5									
74	7	21	13079	N05 E52	232	200	2.5									
74	7	23	13079	N04 E20	234	100	1.0									

REGIONS OF SOLAR ACTIVITY

JULY 1974

MCMATH REGION 13089 CMP DATE 26.3 RETURN OF REGION 13030* ROTATION 4

			CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
74	7	20	13089	S12 E75	223	600	1.5							
74	7	21	13089	S11 E62	222	700	1.5							
74	7	23	13089	S10 E33	221	700	1.5							
74	7	24	13089	S12 E24	220	700	1.5	19443	S12 E20	224	BF			
74	7	25	13089	S12 E10	221	800	2.0							
74	7	26	13089	S12 W03	220	800	2.0							
74	7	27	13089	S12 W15	219	700	1.5							
74	7	28	13089	S12 W27	219	700	1.5							
74	7	29	13089	S11 W43	222	300	2.0							
74	7	30	13089	S12 W54	220	300	1.5							
74	7	31	13089	S12 W66	218	300	1.5							

MCMATH REGION 13107 CMP DATE 26.7

			CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
74	7	27	13107	N29 W11	215	100	1.0							

MCMATH REGION 13113 CMP DATE 26.9

			CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
74	7	31	13113	N02 W60	212	200	1.5							

MCMATH REGION 13094 CMP DATE 27.0

			CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
74	7	23	13094	N12 E42	212	100	1.5							

MCMATH REGION 13098 CMP DATE 27.0

			CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
74	7	24	13098	N05 E34	210	100	1.5							
74	7	25	13098	N05 E19	212	100	1.5							

MCMATH REGION 13084 CMP DATE 27.4 RETURN OF REGION 13030* ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS
74	7	20	13084	S10 E90	208	500	1.5	19440	S09 E86	211	AP	B	150	1	HSX
74	7	21	13084	S12 E77	207	1700	2.5	19440	S09 E72	211	(AP)	3 B	290	3	HHX
74	7	22						19440	S09 E59	211	(AP)	4 B	280	8	HSX
74	7	23	13084	S12 E49	205	2100	3.0	19440	S09 E45	212	(AP)	4 R	210	4	HKX
74	7	24	13084	S12 E38	206	2200	3.0	19440	S09 E32	212	(AP)	3 B	190	12	HHX
74	7	25	13084	S12 E23	208	2200	3.0	19440	S09 E16	213	(BP)	4			
74	7	26	13084	S12 E11	206	1700	3.0	19440	S10 E05	211	(BP)	4 B	160	21	CAI
74	7	27	13084	S12 W02	206	1600	3.0	19440	S09 W07	210	(AP)	4 B	130	24	CAI
74	7	28	13084	S12 W15	207	1600	3.0	19440	S09 W25	211	(AP)	3			
74	7	29	13084	S12 W28	207	1800	3.0	19440	S09 W34	211	(AP)	3 B	10	17	AXX
74	7	30	13084	S11 W41	207	1800	2.5	19440	S10 W48	212	(AP)	3 B	10	9	AXX
74	7	31	13084	S11 W54	206	1800	2.5	19440	S10 W63	213	(AP)	2 R	0	1	AXX
74	8	1	13084	S11 W68	205	1600	2.0								
74	8	2	13084	S12 W81	204	800	1.0								

REGIONS OF SOLAR ACTIVITY

JULY 1974

MCMATH REGION 13099 CMP DATE 29.1

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	24	13099	N08 E58	186	200	1.5								
74	7	25	13099	N08 E45	186	200	1.0								
74	7	26	13099	N08 E33	184	200	1.5								

MCMATH REGION 13095 CMP DATE 29.4 RETURN OF REGION 13037 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	23	13095	S14 E80	174	1500	2.5								
74	7	24	13095	S14 E67	177	1500	2.5								
74	7	25	13095	S14 E53	178	1200	2.0								
74	7	26	13095	S14 E40	177	1300	3.0	19445	S10 E40	176	(BF)	3	8	20	5 BXO
74	7	27	13095	S13 E27	177	900	3.0	19445	S10 E26	177	(AP)	1	8	10	8 BXI
74	7	28	13095	S13 E12	180	800	3.0	19446	S18 E08	178	(AP)	1	8	0	1 AXX
74	7	29	13095	S13 W01	180	800	3.0	19445	S09 E03	174	(BP)	2	8	10	12 BXO
74	7	30	13095	S12 W12	178	1300	3.5	19445	S10 W12	176	(BP)	3	8	20	13 BXO
74	7	31	13095	S13 W25	177	1400	3.5	19445	S10 W26	176	(BP)	4	R	60	8 DSI
74	8	1	13095	S11 W40	177	1500	3.0	19445	S09 W44	177	(BP)	4	8	40	16 DAO
74	8	2	13095	S10 W53	176	1400	3.0	19445	S09 W56	178	(BP)	3	R	50	16 DAI
74	8	3	13095	S10 W68		1700	3.0	19445	S08 W71	179	(AP)	2	8	50	7 CRO
74	8	4	13095	S09 W78		1300	3.0		S10 W81				8	0	4 BXO

MCMATH REGION 13103 CMP DATE 30.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	25	13103	N39 E63	168	100	2.0								

MCMATH REGION 13115 CMP DATE 30.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	31	13115	S41 W13	165	200	1.5								

MCMATH REGION 13100 CMP DATE 30.6 RETURN OF REGION 13030* ROTATION 5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	23	13100	S24 E90	164	500	1.0								
74	7	24	13100	S24 E76	168	600	1.0								
74	7	25	13100	S25 E62	169	800	1.0								
74	7	26	13100	S25 E50	167	800	1.0								
74	7	27	13100	S25 E40	164	700	1.0								
74	7	28	13100	S25 E27	165	800	1.5								
74	7	29	13100	S25 E14	165	800	2.0								
74	7	30	13100	S25 E02	164	700	1.5								
74	7	31	13100	S25 W11	163	600	2.0								
74	8	1	13100	S25 W25	162	600	1.5								
74	8	2	13100	S25 W38	161	600	2.0								
74	8	3	13100	S25 W51		500	2.0								
74	8	4	13100	S23 W61		300	1.0								

MCMATH REGION 13114 CMP DATE 30.7

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
74	7	31	13114	N01 W10	162	200	1.5								

REGIONS OF SOLAR ACTIVITY

JULY 1974

MCMATH REGION 13101 CMP DATE 30.8 RETURN OF REGION 13043 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	24	13101	S15 E80	164	2500	2.5	19444	S16 E74	170	(AP)	2	B	70	2	HSX
74	7	25	13101	S15 E68	163	2500	2.5	19444	S16 E61	168	(AP)	4	B	70	1	HSX
74	7	26	13101	S15 E57	160	3200	3.0	19444	S16 E50	166	(AP)	4	B	70	2	HSX
74	7	27	13101	S15 E45	159	3000	3.0	19444	S17 E36	167	(AP)	4	B	70	2	HSX
74	7	28	13101	S16 E30	162	3000	3.0	19444	S16 E19	167	(AP)	4				
74	7	29	13101	S15 E17	162	2900	3.0	19444	S15 E09	168	(AP)	3	B	30	9	HAX
74	7							19447	S14 E19	158	(AF)	1				
74	7	30	13101	S15 E04	162	3000	3.0	19444	S17 W04	168	(AP)	3	B	20	11	CRO
74	7	31	13101	S15 W08	160	2800	3.0	19444	S15 W17	167	(AP)	2	R	0	1	AXX
74	8	1	13101	S15 W23	160	2800	2.5	19444	S16 W33	166	(AP)	2	B	10	4	AXX
74	8		13101						S15 W17				B	10	6	BXO
74	8	2	13101	S15 W36	159	2900	2.5									
74	8	3	13101	S15 W50		2800	2.5									
74	8	4	13101	S15 W60		2500	2.5									
74	8	5	13101	S15 W75		2700	2.0									
74	8	6	13101	S15 W88		500	1.0									

MCMATH REGION 13117 CMP DATE 30.9

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	8	1	13117	N19 W23	160	100	2.0									

MCMATH REGION 13108 CMP DATE 31.8

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	7	27	13108	N17 E56	148	200	1.5									
74	7	28	13108	N17 E43	149	200	1.0									
74	7	29	13108	N17 E30	149	200	1.0									

MCMATH REGION 13125 CMP DATE 31.8

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
74	8	5	13125	N19 W62		200	2.5									
74	8	6	13125	N19 W75		100	1.0									

The column marked STA is inserted to indicate the source of data for sunspot area, count and classification.
B = Boulder M = Manila R = Ramey

Note: New plage develops and grows rapidly in the midst of old plage 13030 after June 30.
Region 13043 may also contain some weak remnants of region 12990 of the previous rotation.
Region 13051 has formed in the position of old region 12984.
No calcium spectroheliogram was secured at the McMath-Hulbert Observatory on July 22, 1974.
Sunspot observations were made at Mt. Wilson Observatory on all days in July 1974.

DAILY CALCIUM PLAGE INDEX

JULY 1974

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
74	7	1	22.9	74	7	11	9.7	74	7	21	14.8
74	7	2	27.3	74	7	12	11.7	74	7	22	*
74	7	3	26.6	74	7	13	13.9	74	7	23	13.8
74	7	4	27.8	74	7	14	17.1	74	7	24	16.1
74	7	5	27.9	74	7	15	19.7	74	7	25	17.2
74	7	6	25.5	74	7	16	20.2	74	7	26	19.6
74	7	7	19.8	74	7	17	22.3	74	7	27	18.0
74	7	8	14.5	74	7	18	26.2	74	7	28	18.4
74	7	9	11.1	74	7	19	23.7	74	7	29	18.2
74	7	10	7.7	74	7	20	19.0	74	7	30	18.0
								74	7	31	17.8

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1974

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
01	0027	0055	0040	1-	1				1				0037E	13043
01	0603	0636	0606	1-	1				1				0600	13030
01	1036	1130	1041	1	5	3	1	2	3				1035	13043
01	1107	1130	1111	1-	3				1		2		1114E	13043
01	1156	1300	1206	1-	3		1		3		1		1155	13043
01	1600	1642	1607	2	5	6	1	5	6	1	15		1556	13043
01	1719	1741	1722	1-	1	2							1723	13043
01	1826	1929	1838	1	5	3		2	2	1	13		1829E	13043
01	2116	2342D	2202	2	1				1				*	
01	2145	2310	2200	1+	5	5	2	1	3	1	11		*	
01	2304	2304D		1-	1	1							2305	X-RAY
02	0003	0124	0023	1-	5	1			3		3		0000E	13043
02	0111E	0203	0121	1-	3				1		1		0109	13043
02	0421	0455D	0424	1-	1				1				0424E	13043
02	0455E	0536	0458	1-	1				1				0452	13043
02	0609	0830	0721	2	3				1		1		0612	X-RAY
02	0638	0850	0652	2	5	5		3	3		3		0630E	13043
02	0711	0800	0720	2+	5	4	1	3			2		0703E	13043
02	0944	1015	0951	2+	5	3		3	5		3		0943	13043
02	1033	1050	1039	1-	1	1	1						1034	13043
02	1153	1220	1158	1-	1				1				1158	13043
02	1401	1500	1405	1-	3				2		1		1400E	13043
02	1630	1738	1632	1-	5	1		1	3	1	7		1628	13043
02	1807	1825	1812	1-	5				3	1	5		1805	13043
02	1930	2030	1945	1-	5	1		1	3		12		1923	13043
02	2149	2206	2151	1-	5	1			2		7		2140	13043
02	2240	0030	2320	1	5	2	1		3		10		2242	13043
02	2311	2341	2315	1	1	1							2315E	13043
02	2352	0111D	0022	1-	1				1				2352	13043
03	0205	0300	0215	1	5	2	1		3				0205	13043
03	0305	0410	0320	2	3	2		1	3		1		0300	13043
03	0416	0433	0420	1-	3				2				0416	13043
03	0800	1100	0845	3-	5	2	1	2	3		2		0758	13043
03	0830	1000	0840	3	5	4	2	6	5		3		0822E	13043
03	0910	0923D	0923	1-	1						1		0905E	13043
03	1110	1155	1120	1-	3			1	2		1		1111	13030
03	1217	1250	1229	1-	5			1	1		2		1219	13043
03	1255	1320	1300	1-	1				1		1		1253	13043
03	1510	1615	1525	1-	3				1		2		1513E	13043
03	1635	1717	1635	1-	1						1		1633	13043
04	0309	0428	0321	1-	1				1				0306	13043
04	0612	0625	0616	1-	3				1		1		0610	13043
04	0641	0805	0650	3	5	5	2	5	6		4		0634E	13043
04	0805	0845	0817	1-	1						1		0806	13043
04	1319	1332D	1332	1-	5						3		1321E	13043
04	1345	1505	1355	3	5	7	2	8	7		14		1339	13043
04	1620	1631D	1631	1	5	3		1	1		11		1621	13043
04	1644	1653D	1653	1-	3	1			;		1		1642	13043
04	1715	1824	1820	1	3	1			2		1		1704	13043
04	1728	1735D	1735	1-	1						1		1728E	13043
04	1820	1930	1830	1	5	4	2	7	8	1	11		1818	13043
04	1927	1950	1935	1-	3	1			1		4		NF	
04	2017	2035D	2035	1-	3				1		5		2014	13043
04	2050	2244	2110	2	5	5	1	2	5	1	12		2039E	13043
04	2224	2235	2227	1-	5	1			1		1		2221	13043
04	2312	0110	0004	1-	3				2				2312	13043

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1974

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
05	0048	0138	0105	1-	1				1				0048	13043
05	0153	0336	0203	1-	5	1			3		4		0148E	13043
05	0225	0250	0230	1-	3						4		0221E	13043
05	0701	0720	0706	1-	3				2		1		0659	13043
05	1205	1212D	1212	1	5	1	1	1	3		3		1157	13043
05	1229	1330	1242	2	5	3	1	4	6		10		1228E	13043
05	1326	1352	1335U	1-	3			2					1325	13043
05	1357	1419	1404	1-	1			1					1353	13043
05	1508	1620	1515	3	5	7	2	5	2	1	13		1507	13043
05	1756	1845	1805	1-	1				1		1		1756	13043
05	2137	2315	2145	3	5	5	2		7	1	10		2132	13043
06	0816	0916	0820	1-	5	2	1	1	4		2		0815	13043
06	1005	1104	1040	1	3				1		1		1008E	13043
06	1034	1235	1057	2+	5	3	1	3	5	1	3		1036	13043
06	1105	1349	1120	2+	5	2	1	3	6		5		1106	13043
06	1349	1430	1353	1-	5				2		2		1348	13043
06	1532	1600	1537	1-	1				1		1		1529E	13043
06	1712	1723	1716	1-	1	1							1708	13043
06	1846	1900	1850	3	5	3	2	1	6	1	12		1840E	13043
06	1909	2100	1916	1-	5		2		1		7		1907	13043
07	0704	0720	0706	1-	1			1					0704	13043
07	0729	0826	0740U	1-	1			1					0726	13043
07	0925	0955	0935	1+	3	1	1	2	4		2		0920	13043
07	0956	1140	1016	2	5	3	2	2	5		4		NF	
07	1153	1200D	1200	2-	5	2	1	1	3		4		1150	13043
07	1216	1250	1226	2-	5	2	1	3	5		9		1212	13043
07	1251	1420	1313	1	3				2		2		NF	
07	1514	1600	1520	1+	5	3	1	2	5	1	11		1512	13043
07	1715	1800	1724	1-	5	1		1	1	1	5		1720E	13043
07	1820	1930	1837	1-	5	1			2	1	9		1820	13043
07	2117	2218	2125	1-	5	1		1	3	1	10		2126E	13043
08	0141	0318	0221	1-	1				1				*	
08	1020	1152	1050	1	3			1	1				1030	13043
08	1230	1310	1236	1-	5	2			3		3		1229	13043
08	1315	1400	1323	1	5	2		2	5		4		1311	13043
08	1406	1445	1415	1-	5	1		1	3		3		NF	
08	1454	1530	1500	1-	3			1	1		1		1452	13043
08	1539	1630	1546	3-	5	7	3	7	8	1	14		1540	13043
08	2224	2351	2229	2	5	4	2	2	4	1	9		2223	13043
09	0148	0300	0152	3-	5	3	1		2		2		0149E	13043
09	0257D	0357D	0300	1	5	1			2				0257	13043
09	0357E	0521D	0359	1-	1				1				0357	13043
09	0521E	0539D	0524	1-	1				1				0521E	13043
09	0539E	0604	0543	1-	1				1				0540	13043
09	0639	0700	0654	1-	3				1		1		0640E	13043
09	0714	0740	0720	1-	3	2	1		3		2		0713	13043
09	0827	0850	0832	1-	3				1		2		0825	13043
09	1101	1125	1112	1-	5	1		1	3		1		1104E	13043
09	1137	1220	1148	2	5	2		3	3		4		1140E	13043
09	1221	1252	1228	1-	3						2		1223E	13043
09	1356	1445	1401	2	5	6	1	4	6	1	14		1335	13043
09	1452	1513	1500	1-	3				2		2		1448	13043
09	1731	1845	1743	1	5	3	1	1	4	1	13		1730	13043
09	1854	2000	1859	1	5	3	2	2	3	1	11		1854	13043
09	2336	0020	2345	1-	5				3		3		2337	13057
12	1128	1131D	1131	1-	1			1					1126	13063
15	1228	1305	1236	1-	1						1		1226	13063
23	1443	1454	1445	1-	1			1					1446E	13088
26	2228	2256	2233	1-	1				1				2228E	13095

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1974

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
01	0000-1940 SC (24 kHz), 1515-1640 MC, 2100-2205 UM (16 kHz)
02	1010-1315 UM (16 kHz), 1800-1845 MC, 2100-2225 UM (16 kHz)
03	1100-1200 UM (16 kHz), 2100-2310 UM (16 kHz)
04-31	0000-2400 A33
05	1000-1630 A35 (34 kHz), 1343-1433 UM (16 kHz), 1355-1545 UM (17 kHz), 1542-1736 UM (17 kHz), 2057-2133 UM (16 kHz)
06	2000-2009 TM
07	2050-2400 BO
08	0000-0153 BO, 0742-1015 UM (16 kHz)
10	1354-1418 TM, 1442-1500 TM, 2014-2112 TM
11	0000-2400 A32, 0153-0253 TM, 1545-1745 MC, 2223-2400 BO
12	0000-0100 BO, 2058-2308 UM (16 kHz)
13	0731-0821 UM (16 kHz)
14	0751-1002 UM (16 kHz)
15	0000-0110 TM, 0000-2400 A32, 0449-0651 TM, 0739-1055 UM (16 kHz)
16	0757-1007 UM (16 kHz), 1110-1327 UM (16 kHz), 1718-1812 TM, 1922-1957 TM
17	0000-2400 A32, 2149-2156 TM
18-31	0000-2400 A21 (24 kHz)
18	0000-2400 A29, 0240-0458 BO, 0817-0901 UM (16 kHz) 1540-1555 TM, 1836-1916 TM
19	0000-2400 A26, 0750-0826 UM (16 kHz), 1405-1725 UM (17 kHz)
20	0500-1945 A38, 0750-1130 UM (16 kHz)
21	0740-0833 UM (16 kHz), 1932-2400 BO, 1952-2157 TM
22	0000-1842 BO 0749-1000 UM (16 kHz), 2129-2400 BO
23	0000-2400 A37, 1000-1445 BO, 1003-1335 UM (16 kHz), 1415-2400 A38, 2327-2400 MC
24	0000-0512 MC, 0000-2305 A38, 0742-1228 UM (16 kHz)
25	0745-1328 UM (16 kHz), 2034-2206 UM (16 kHz)
26	0755-1010 UM (16 kHz), 1405-1727 UM (17 kHz)
27	0530-1630 A38, 0750-1255 UM (16 kHz)
28	0705-0950 BO, 0755-0913 UM (16 kHz)
29	0750-0910 UM (16 kHz), 2000-2400 BO, 2005-2400 A38
30	0000-0228 BO, 0000-2400 A38, 1000-1800 BO, 1215-1328 UM (16 kHz)
31	0734-0823 UM (16 kHz), 2140-2313 BO

STATIONS REPORTING FOR JULY 1974

AAVSO (A1, A32) (SEA) (A1, A19, A21, A26, A29, A30, A31, A33, A35, A36, A37, A38) (SES) (A31, A38) (SEA)
AREQUIPA (AQ) (SPA)
BOULDER (BO) (SCNA, SEA)
DARMSTADT (DA) (SWF)
DEBRE ZEIT (DE) (SPA)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
JOHANNESBURG (JH) (SPA)
KUHLINGSBORN (KU) (SEA, SPA)
KULA (KL) (SPA)
MANILA (MA) (SWF, SCNA, SPA)
MC MATH (MC) (SWF, SCNA)
NEUSTRELITZ (NU) (SWF, SCNA)
PANSKA VES (PU) (SWF, SEA, SES)
POITIERS (PO) (SEA)
PRESTON (LO) (SEA)
SAO PAULO (UM) (SPA, SES)
SOFIA (SF) (SES)
ST CLOUD (SC) (SES)
TABLE MOUNTAIN (TM) (SPA, LF-SPA)
TORINO (TN) (SPA)
TORTOSA (TS) (SEA)
UPICE (UI) (SEA)

SID's BY McMATH REGION

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
30	1		1																												
43	7	17	10	20	11	9	9	6	15																						
57									1																						
63												1			1																
88																							1								
95																										1					
X-RAY	1	1																													
UNKNOWN				1			2	1																							
NO FP	2							1																							

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS
JULY 1974

JUL 1974	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
J1			CULG							0000	0710	1				IIIS
	0000	0735	CULG							0030	0710	1				IS
	0000	0230	BOUL							0000	0106	1	0000	0106	1	CONT
	0455	1811	OURN				0457.7	0457.9	3							IIIG
	0327	1247	WEIS							0716.9	0717.1	1				IIIB
			WEIS							0719.5	0719.6	1				IIIB
			WEIS							0721.9	0722.3	2				IIIG
	0000	0957	MANI										0721.9	0722.3	3	III
	0733	1610	OWIN				0733	1610	1	0733	1610	1				IC
			WEIS							0737.0	1034.0	2				IIIG
			OURN							0753	1811 D	1				IC,OC
			OURN							1014.8	1014.8	2				III
			WEIS							1014.8	1014.9	2				IIIB
			OWIN							1814.8		2				IIIB
			OURN				1034.5	1034.7	2	1034.6	1034.6	1				IIIG,RS
			OURN				1034.8	1035.9	2	1034.8	1035.9	2				IV
			OWIN				1034.9	1036.4	2							IIIG
			WEIS				1035.0	1036.0	1							III,CONT
	0914	2420	SGMR										1035.1	1036.1	1	III
			WEIS							1068.0	1701.0	2				IN
			SGMR										1123.0	1123.4	1	III
			WEIS							1123.2	1123.4	1				IIIB
	1130	2400	BOUL							1227.8	2400	1	1227.8	2400	1	CONT
			SGMR										1227.9	1228.1	1	III
			SGMR										1246.1	1250.1	1	IIIG
			WEIS							1246.2	1246.4	1				IIIB
			SGMR										1250.1	2420.0	2	CONT
			WEIS							1250.7	1250.9	1				IIIB
			BOUL							1300	2400	1				IS
	1301	1822	WEIS							1336.6	1337.4	1				IIIG
			OWIN				1340.4	1340.5	1	1340.4	1340.5	1				IIIG
			WEIS							1340.5	1340.6	1				IIIB
			WEIS							1341.8	1342.0	1				IIIG
			HARV							1401	1405	2	1403		2	IIIGG
			WEIS							1401.2	1423.4	2				IIIN,GG
			OWIN				1403.9	1404.6	2	1403.1	1404.1	1				IIIG
			HARV							1411	1415	2				IIIGG
			WEIS							1459.7	1601.9	2				IIIG
			OWIN							1459.8	1501.8	2				IIIG
			HARV							1500	1502	3	1500	1502	3	IIIG
			BOUL							1500.3	2400	2	1500.3	2400	2	IIIN
			OURN							1503.9	1504.0	2				IIIG
			WEIS							1541.0	1747.4	1				IIIN,G
			OURN				1556.7	1604	2	1556.7	1604	2				IV
			OWIN				1556.8	1556.9	2	1556.8	1556.9	2				IIIG
			HARV							1558	1559	3	1558	1559	3	IIIG
			OWIN				1558.6	1558.9	1	1558.6	1558.9	1				IIIG
			HARV							1612	1613	3	1612	1613	3	IIIG
			HARV							1628	1629	3	1628	1629	3	IIIGG
			HARV							1713	1714	3	1713	1714	3	IIIG
			HARV							1719	1920	3	1719	1720	3	IIIB
			HARV							1723	1727	2	1723	1726	2	IIIGG
			HARV							1733	1744	2	1736	1744	2	UNCLF
			HARV							1820	1827	2	1820	1827	2	IIIGG
			HARV							1831	1906	1	1831	1906	1	IIIN
	1842	1917	WEIS													
			CULG							2104	2240	2				IIIS
	2035	2400	CULG				2104	2400	2	2104	2400	2				IS
			CULG				2145	2204	2							CONT
			CULG							2145	2159	3	2145	2157	2	IIIGG
			HARV							2145	2157	3	2145	2157	3	IIIGG
			SGMR										2145.7	2159.0	3	IV
	2134	2400	MANI										2146.0	2154.7	1	CONT
			MANI										2339.2	2344.8	3	IIG
			MANI										2348.7	2349.4	3	III
			MANI										2354.9	2359.5	3	IIG
02			CULG				0000	0613	1	0000	0613	2				IS,CONT
	0000	0613	CULG							0000	0613	2	0000	0613	2	IIIS
	0000	0230	BOUL							0000	0205.9	2	0000	0205.9	2	CONT
			BOUL							0000	0207	2				IS
	0000	0957	MANI										0000.3	0019.2	2	IIG
			CULG				0002	0004	2							FASTORIFT
			CULG				0008	0012	2							FASTORIFT
			CULG							0008	0012	1	0008	0012	1	IIIG
			CULG							0025	0155	1				IIIS
			CULG							0157.5	0159	2	0158	0159	2	IIIG
			MANI										0158.3	0201.2	2	IIG
			MANI										0220.9	0221.4	1	IIIG
			MANI										0235.1	0236.9	1	IIIG
			MANI										0256.8	0257.2	1	III
			MANI										0326.8	0327.0	1	III
			MANI										0336.4	0338.2	1	IIIG
			MANI										0346.8	0347.0	1	III
	0339	1919	WEIS							0355.0	1834.0	2				IN
			CULG							0415.5	0416.5	1				UNCLF

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
02			WEIS							0445.0	1229.0	2				IN
	0455	1810	OURN							0455 E	1810 D	1				IC
			CULG							0601.5	0611	3	0602	0611	2	IIIGG
			WEIS							0601.7	0607.3	3				IIIG
			MANI										0601.8	0610.9	3	IIIG
			OURN				0602	0730	3	0601	0730	3				IV
			CULG				0602	0611	2							FASTDRIFT
			WEIS							0608.2	0610.6	3				IIIGG
			WEIS							0612.5	0616.5	3				IIIGG
			MANI										0613.1	0625.9	2	IIIG
			WEIS							0619.5	0659.0	3				IIIN,GG
			MANI										0633.5	0830.0	3	CONT
			WEIS							0701.0	0702.0	3				IIIG
			WEIS							0704.0	0722.0	3				IV
			WEIS							0706.7	0815.0	3				IIIN,GG
	0717	0741	CULG													
	0735	2003	OWIN				0735	2003	1	0735	2003	1				IC
			OWIN							0743.6	0744.2	2				IIIG
			OWIN				0747.1	0748.1	2	0747.1	0748.2	2				IIIG
			OWIN				0802	0820	1	0802	0820	1				IV
			OWIN				0820.5	0822.0	3	0820.5	0822.0	3				IIIGG
			WEIS							0820.6	0822.3	3				IIIGG
			OURN				0820.9	0822.0	3	0820.5	0822.1	3				IIIGG
			WEIS							0824.5	1745.0					IIIN,GG
			MANI										0841.3	0905.6	1	IIIG
			MANI										0942.3	0945.5	1	V
	0914	2420	SGMR										0942.8	0944.3	2	III
			OWIN							0943.0	0944.1	3				IIIG
			SGMR										0944.3	2420.2	1	CONT
			OWIN				0946.6	0946.9	2							IIIG
			OURN				0950.9	0953.8	2	0946.5	0954.3	2				IV
			OURN				1018.9	1019.8	1	1018.0	1021.1	2				IV
			OURN							1030	1350	2				IC
			SGMR										1109.1	1111.4	3	IIIG
			OWIN				1109.3	1112.1	3	1109.3	1112.1	3				IIIGG
			BOUL							1143	2010	2				IS
	1130	2400	BOUL							1143.6	1943	2	1143.6	1943	2	CONT
	1231	2252	HARV							1231 E	2252 D	1				I
			OWIN				1233.5	1234.0	2	1233.5	1234.0	2				IIIG
			OWIN				1258.5	1300.0	3	1259.7	1300.0	3				IIIG
			OURN							1259.7	1259.7	2				III
			WEIS							1352.9	1356.0	3				IIIGG
			WEIS							1356.0	1540.0	3				IV
			HARV							1357	1358	2	1357		2	IIIG
			OWIN				1357.0	1357.1	2	1357.0	1357.1	2				IIIG
			WEIS							1359.3	1402.5	2				II
			HARV							1401	1403	3	1401	1402	3	IIIG
			OURN							1401.3	1401.9	2				IIIG
			OWIN				1401.3	1401.6	2	1401.0	1402.0	3				IIIG
			SGMR										1401.5	1403.0	3	III
			HARV							1411	1412	2	1411	1412	1	IIIG
			HARV							1421	1422	1	1421	1422	1	IIIG
			OURN				1421.1	1421.2	2	1421.1	1421.3	3				IIIG
			OWIN				1421.1	1421.5	3	1421.1	1421.5	3				IIIG
			HARV							1428	1429	3	1428	1429	3	IIIG
			HARV							1506	1508	2	1506	1508	2	IIIG
			OWIN							1506.5	1508.0	2				IIIG
			HARV							1513	1518	2	1513	1518	2	IIIGG
			HARV							1521	1523	2	1521	1523	2	IIIGG
			HARV							1528	1529	2	1528	1529	2	IIIG
			OWIN							1528.2	1528.5	2				IIIG
			HARV							1535	1537	2	1535	1537	2	IIIGG
	0735	2003	OWIN				1535.5	1536.4	2	1535.4	1537.5	3				IIIGG
			HARV							1543	1545	1	1543	1545	1	IIIG
			HARV							1552	1719	2	1552	1719	2	IIIN
			HARV							1556	1602	2	1556	1602	2	IIIGG
			OWIN							1558.7	1558.9	2				IIIG
			HARV							1606	1614	3	1606	1614	3	IIIGG
			OURN							1608.3	1608.7	2				IIIG
			OWIN				1608.3	1608.8	2	1607.5	1609.8	3				IIIGG
			OWIN				1610.6	1611.2	2	1610.6	1611.2	2				IIIG
			OWIN							1612.8	1613.8	2				IIIG
			HARV							1630	1635	3	1630	1635	3	IIIGG
			SGMR										1631.2	1655.2	3	IV
			OURN				1633.5	1644.5	3	1633.5	1645.8	3				IV
			OWIN				1635.1	1635.5	2	1635.1	1635.5	2				IIIG
			OWIN				1638.5	1640.0	2	1638.5	1640.0	2				IIIG
			HARV							1639	1647	3	1639	1647	3	IIIGG
			OURN				1641.6	1641.7	2	1641.6	1641.7	3				IIIG
			OWIN				1641.6	1641.9	3	1641.6	1641.9	3				IIIG
			OWIN				1642.8		3	1642.8		3				IIIG
			OWIN				1643.8	1645.1	1	1643.8	1645.1	1				IIIGG
			WEIS							1645.7	1647.7	1				IIIG
			OWIN				1652.8	1654.0	2	1652.8	1654.0	2				IIIG
			HARV							1653	1655	2	1653	1655	2	IIIGG
			HARV							1659	1703	2	1659	1703	2	IIIGG
			WEIS							1702.6	1847.2	2				IIIN
			HARV							1710	1712	1	1710	1712	1	IIIG
			HARV							1714	1718	3	1714	1718	3	IIIGG
			HARV							1720	1722	3	1720	1722	3	IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
02			OWIN				1720.2	1722.0	3	1720.1	1722.0	3				IIIGG
			OURN				1720.5	1720.5	2	1720.2	1721.5	3				IIIGG
			HARV							1723	1906	2	1723	1906	2	IIIS
			HARV							1829	1833	2	1829	1833	2	IIIGG
			HARV							1910	1937	3	1910	1937	3	IIIS
			OWIN							1918.6	1918.0	2				IIIG
			OWIN				1919.2		2	1919.2		2				IIIB
			SGMR										1928.0	1938.1	2	IV
			OWIN				1933.5	1934.9	2	1933.5	1934.9	2				IIIG
			HARV							1938	2144	2	1938	2144	2	IIIN
			OWIN				1940.5	1940.7	2	1940.5	1940.7	2				IIIG
			BOUL							1943	2201.3	1	1943	2201.3	1	CONT
			HARV							2032		3	2032		3	IIIB
			HARV							2035	2036	3	2035	2036	3	IIIG
			HARV							2052	2053	3	2052	2053	3	IIIG
			BOUL							2052.5	2200	2	2052.5	2200	2	IIIN
	2036	2400	CULG				2104	2400	2	2104	2400	2				IS,CONT
			CULG							2104	2400	2				IIIS
			CULG										2129	2248	1	IIIN
			CULG				2133	2137.5	1	2133	2138	2	2133	2138	2	IIIGG,V
			SGMR										2136.8	2137.7	3	III
			HARV							2137	2138	3	2137	2138	3	IIIGG
			BOUL							2201.3	2400	3	2201.3	2400	3	IV
			CULG							2201.5	2208	2	2201.5	2206	2	IIIGG,V
			SGMR										2201.8	2205.3	2	IIIG
	2135	2400	MANI										2248.5	2304.6	1	IIIG
			CULG				2251	2315	2							FASTDRIFT
			SGMR										2301.9	2314.1	2	IIIG
			MANI										2305.7	2300.7	2	V
			MANI										2311.2	2314.6	2	IIIG
			MANI										2329.4	2329.9	1	III
03	0000	0736	CULG				0000	0432	2	0000	0708	2				IS,CONT
			CULG							0000	0708	2				IIIS
	0000	0230	BOUL							0000	0220	3	0000	0220	3	IV
	0000	0958	MANI										0000.0	0559.8	2	CONT
			CULG				0148	0200	1							FASTDRIFT
			CULG				0315	0320	2							FASTDRIFT
	0343	0749	WEIS							0352.0	1622.0	2				IN
			CULG							0415	0455	1				UNCLF
			WEIS							0416.0	1735.6	1				IIIS
	0455	1812	OURN							0455 E	1812					IDC,C,N
			OURN							0503.5	1503.9	3				IIIGG
			OURN							0523.8	0524.1	2				III
			OURN							0553.1	0554.4	2				IV
			MANI										0631.0	0631.7	1	III
			WEIS							0723.7	0731.8	3				IIIGG
			WEIS							0723.8	0730.0	3				IIIGG,RS
			OURN				0723.8	0725.2	3	0723.8	0731.3	3				IV
			MANI										0724.0	0725.5	3	III
			MANI										0726.2	0728.7	3	III
	0752	1614	OWIN				0752	1614	2	0752	1614	2				IC
			MANI										0807.7	0808.6	3	III
			OURN				0807.8	0808.0	1	0807.8	0808.2	2				IV
	0800	1437	WEIS							0807.8	0808.5	3				IIIGG
			OWIN				0820	0903	2	0820	0903	2				IV IIIG
			WEIS							0826.0	1029.0	3				IV
			WEIS							0826.5	1257.0	3				IIIGG,RS
			WEIS							0827.0	0839.5	3				IIIGG
			OURN				0827.2	0901.2	3	0827.2	0902.5	3				IV
			MANI										0828.0	0837.1	4	IV
			MANI										0837.2	0838.0	2	III
	0915	2420	SGMR										0915.1	1900.0	2	CONT
			OWIN				0919	0956	2	0919	0956	2				IV
			OURN							0923.0	0929.5	2				IV RS
			OURN							0938.5	0957	2				IV
			OURN				0951.2	0953.6	3	0951	0953.6	3				IV
			WEIS							1004.0	1026.0	1				IVP
			OWIN				1058	1111	2	1058	1111	2				IV
			OURN				1100.0	1100.4	2	1058.6	1106.9	3				IV
	1130	1935	BOUL							1130	1935	2	1130	1935	2	IV
	1231	2245	HARV							1231 E	2245 D	1				I
			OURN				1239.8	1255.9	3	1239.8	1257.1	3				IV
			OWIN				1240	1306	2	1240	1306	2				IV
			HARV							1243	1247	2				IIIGG
			OWIN				1426	1441	2	1426	1441	2				IV
			OURN							1428.0	1438.8	3				IV
	1443	1917	WEIS													
			HARV							1503	1506	2	1503	1506	2	IIIG
			HARV							1512	1524	3	1512	1524	3	IIIGG
			HARV										1533	1558	2	I
			HARV							1539	1540	3	1539	1540	3	IIIG
			OWIN				1543.6	1544.5	2	1543.6	1544.5	2				IIIG
			HARV							1609	1614	3	1609	1614	3	IIIG,V
			HARV							1631	1900	1	1631	1900	1	IIIN
			HARV							1729	1731	1	1729	1731	1	IIIG
			HARV							1735	1736	3	1735	1736	3	IIIB
			OURN				1811.1	1812.1	3	1811.1	1812.1	3				IV
			HARV							1812	1813	3	1812	1813	3	IIIG
			HARV							1821	1826	1	1821	1826	1	IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
--			HARV							1833	1840	1	1833	1840	1	IIIGG
			HARV							1834	1848	3	1837	1848	3	UNCLF
			SGMR										1900.0	2200.5	2	IIIG
			HARV							2039	2041	2	2039	2041	2	IIIG
			HARV							2104	2105	3	2104	2105	3	IIIG
	2036	2400	CULG							2104	2400	1				IIIS
			CULG							2106	2400	1				IS,CONT
			CULG				2106	2400	1							IS
			CULG				2113	2400	1							IIIN
			HARV							2120	2121	3	2120	2121	3	IIIG
	2135	2400	MANI.													
			CULG							2159.5	2200.5	2	2159.5	2200.5	2	IIIG
			HARV							2200		3	2200		3	IIIB
04	0000	0736	CULG							0000	0056	1				IIIS
			CULG				0000	0715	1							IS
			CULG										0000	0650	1	IIIN
			CULG							0000	0715	1				IS,CONT
	0000	0230	BOUL							0000	0145	1	0000	0145	1	CONT
			CULG				0018	0026	2							FASTDRIFT
			CULG							0056	0350	1				IIIS
			CULG				0056	0057	2	0056	0059	2	0056	0059	2	IIIGG,V
			BOUL							0056.1	0057.7	2	0056.1	0057.7	2	IIIG
	0000	0958	MANI										0056.3	0058.2	3	IIIG
			MANI										0118.4	0131.0	1	IIIG
			CULG							0255.5	0257	2	0256	0257.5	2	IIIG,V
			MANI										0256.2	0256.9	3	III
			CULG							0350	0510	2				IIIS
	0000	0958	MANI										0402.8	0403.2	1	III
			MANI										0411.5	0411.7	1	III
			MANI										0442.2	0442.9	1	III
			MANI										0450.3	0452.1	1	IIIG
	0340	1237	HEIS							0450.4	0450.5	1				IIIB
			MANI										0456.8	0457.1	1	III
			HEIS							0456.9	0457.0	1				IIIB
			CULG				0610.5	0614	1	0610.5	0614	2	0610.5	0611	2	IIIG,V
			HEIS							0610.6	0612.2	3				IIIG
			MANI										0610.7	0613.3	3	IIIG
	0456	0758	OURN				0611.7	0612.3	2							IIIGG
			OURN							0613	0640	1				I
			HEIS							0615.4	0616.7	2				IIIG
			HEIS							0626.8	0629.7	2				IIIG
			CULG				0628	0630	1	0628	0630	1				IIIG,RS
			CULG				0631.5	0632.5	1	0631.5	0632.5	2				IIIG,V,U
			OURN							0631.5	0631.7	2				IIIG
			MANI										0631.6	0632.4	3	III
			HEIS							0631.7	0632.4	3				IIIG
			CULG				0635	0636	1	0635	0636	2				IIIG
			HEIS							0635.3	0635.6	2				IIIG
			HEIS							0641.0	0646.7	3				IIIGG
			MANI										0641.6	0647.0	3	IIIG
			CULG				0642	0646	1	0641	0647	2				IIIGG,V
			OURN				0643.5	0654.4	3	0643.0	0710	3				IV
			CULG										0647	0720	1	
			CULG	0647	0650	1	0647	0652	2	0647	0652	3	0647	0650	2	IIIGG
			HEIS							0647.3	0650.3	3				IIIG,V
			MANI										0647.3	0651.5	3	CONT
			HEIS							0650.0	0655.0	3				IIIGG
			CULG				0652	0710	2	0652	0710	2				CONT
			OURN				0653.6	0647.5	3	0653.6	0647.5	3				IIIGG
			MANI										0707.0	0801.8	1	CONT
	0738	1603	DWIN				0738	1603	1	0738	1603	1				IC
			HEIS							1007.9	1008.2	1				IIIB
	0915	2419	SGMR										1007.9	1008.2	1	III
			HEIS							1020.7	1021.0	1				IIIG
			HEIS							1104.8	1105.2	1				IIIB
			SGMR										1105.0	1105.3	1	III
			SGMR										1217.3	1219.1	2	III
	1244	1919	HEIS							1217.4	1719.8	1				IIIG
	1231	2246	HARV							1231 E	1735	1				I
			SGMR										1312.6	1314.7	1	III
			SGMR										1334.8	1353.1	2	CONT
			DWIN							1346.6	1447.7	1				IIIG
	0810	1812	OURN				1352.7	1354	3	1352.8	1334	3				IIIGG
			HARV							1353	1446	3				IV
			HARV							1353	1358	3	1353	1358	3	IIIGG,V
			DWIN				1353.0	1357.0	3	1353.0	1357.0	3				IIIGG
			SGMR										1353.1	1519.8	2	IV
			OURN				1353.2	1654	3	1353.2	1654	3				IV
	1130	2400	BOUL							1353.3	1356.2	3	1353.3	1356.2	3	III
			BOUL							1356.2	1600	2	1356.2	1600	2	IV
			DWIN				1357.0	1603	3	1357.0	1603	3				IV
			HARV							1359.3	1407	3	1400	1404	3	II
			HARV							1403	1412	3	1403	1412	3	IIIGG
			DWIN							1404.9	1405.0	2				IIIG
			HARV							1415	1416	3	1415	1416	3	IIIB
			SGMR										1519.8	1705.5	1	CONT
			OURN				1529.3	1558	2							IV
			BOUL							1634.2	2400	2	1634.2	2400	2	CONT
			HARV							1646	1647	2	1646	1647	2	IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
04			HARV							1704	1736	3	1704	1736	3	IIIGG,V
			HARV										1704	1713	2	I
			SGMR										1705.5	1931.0	2	IV
			OURN							1708.2	1733.8	2				IIIG,N
			OURN				1718.4	1723.1	3	1718.4	1723.1	3				IV
			OURN				1728.1	1729.7								IIIG
			OURN				1731.5	1735.2	3	1731.7	1735.2	3				IV
			HARV							1735	1807	1	1735	1807	1	IC
			HARV							1740	1749	1	1740	1749	1	IIIGG
			HARV							1752	1759	3	1752	1759	3	IIIGG
			HARV							1807	1837	1				I
			HARV							1807	2236	2	1808	2236	2	IIIN
			HARV							1817	1833	3	1817	1833	3	IIIGG,V
			HARV							1836	1923	2	1837	1923	2	IC
			HARV							1846	1848	3	1846	1848	3	IIIG,V
			HARV							1923	2246	D 1				I
			HARV							1943	1944	3	1943	1944	3	IIIG
			SGMR										2013.6	2013.8	2	III
			SGMR										2050.0	2104.0	3	IV
			HARV							2053	2114	3	2053	2114	3	IIIGG
	2036	2400	CULG							2055	2400	2	2100	2318	1	IIIS
			CULG							2100	2400	2				IS
			CULG							2100.5	2111	2	2100.5	2101	2	IIIGG
			CULG				2104	2124	2	2109	2124	2				FASTORIFT
			SGMR										2104.0	2215.0	2	CONT
			CULG				2122.5	2129	1							FASTORIFT
			CULG				2136	2140	2							FASTORIFT
			CULG				2149	2153.5	2							FASTORIFT
			CULG				2155.5	2158	1							FASTORIFT
			CULG				2202.5	2203	1							FASTORIFT
			CULG				2218	2221	1							FASTORIFT
			CULG							2315	2318	2				IIIG,V
			BOUL							2315.5	2319.2	2	2315.5	2319.2	2	IIIG
	2135	2400	MANI										2316.0	2318.6	2	IIIG
			CULG							2325	2337	1				CONT
			BOUL										2326.5	2330.3	1	II
			BOUL							2327.5	2343.6	1	2327.5	2343.6	1	II
05	0000	0230	BOUL							0000	0210	2	0000	0210	2	CONT
			CULG							0000	0655	1				IIIS
	0000	0736	CULG							0000	0712	2				IS
			CULG				0043	0047	2							FASTORIFT
			CULG							0043	0103	2	0045.5	0046	2	IIIGG,V
	0000	0958	MANI										0043.7	0049.2	2	IIIG
			MANU										0058.7	0102.2	2	IIIG
			CULG				0100	0102.5	1							FASTORIFT
			CULG							0152.5	0159	2	0154.5	0157	1	IIIGG,V
			CULG				0152.5	0156.5	2							FASTORIFT
			BOUL							0152.7	0158.4	2	0152.7	0158.4	2	IIIGG
			MANI										0152.7	0158.5	3	IIIG
			CULG				0204	0207	2							FASTORIFT
			CULG							0214.5		1				RS,DP
			CULG							0337	0341	2				IIIGG,V
			MANI										0338.2	0340.9	2	IIIG
			MANI										0347.2	0349.6	1	IIIG
			CULG							0358.5		1				RS,DP
			WEIS							0404.0	0700.0	1				I
	0343	1639	WEIS							0451.2	0451.3	1				IIIB
	0343	1639	WEIS							0451.2	0451.3	3				
			WEIS							0522.7	0522.8	1				IIIB
			CULG							0534	0604	1				N,RS,DP
	0747	1700	OWIN				0747	1700	1							I
			OWIN							0747	1555	1				IC
			WEIS							0824.6	0824.8	2				IIIG
			MANU										0824.6	0824.8	1	III
	0456	1810	OURN				0858.6	0858.7	2							IIIG
			OWIN				0923.3	0924.0	2							IIIG
			WEIS							0958.7	0958.8	1				IIIB
			OWIN							1038.5	1038.7	2				IIIG
			WEIS							1038.7	1039.0	2				IIIG
			OWIN				1038.9		1	1038.9		1				IIIB
	0916	2419	SGMR										1038.9	1041.2	1	IIIG
			WEIS							1040.5	1041.5	1				IIIG
			WEIS							1048.0	1049.1	1				IIIG
			WEIS							1101.2	1101.3	1				IIIB
			WEIS							1108.6	1110.0	1				IIIG
			SGMR										1108.9	1109.2	1	III
			WEIS							1127.5	1156.3	3				IIIGG
			WEIS							1139.5	1140.0	1				IIIG
			SGMR										1149.5	1150.1	2	III
			WEIS							1149.8	1152.4	1				IIIB
			SGMR										1156.0	1159.1	1	IIIG
			WEIS							1158.5	1159.0	1				IIIG
	1130	2400	BOUL							1203.2	1300	2	1203.2	1300	2	CONT
			OWIN				1203.3	1205.0	3	1203.3	1205.0	3				IIIG
			SGMR										1203.3	1212.1	3	CONT
			WEIS							1203.4	1211.3	3				IIIGG
			OURN				1203.4	1203.5	3	1203.4	1203.5					IIIG,RS
			OURN				1203.5	1204.0	2	1203.5	1204.0					IV
			OURN				1203.6	1204.6	3							IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
05			OURN							1204.6	1204.8	2				UNCLF
			OWIN				1206.0		1	1206.0		1				IIIB
			OURN				1212.5	1518	2	1516.2	1518.4	3				I
			SGMR										1227.1	1324.0	2	CONT
	1231	2400	HARV							1233	1241	2				IIIGG
			BOUL										1300	1509.8	1	CONT
			HARV							1302	1642	1				IN
			SGMR										1428.1	1428.7	1	III
			OWIN				1509.6	1525.6	3	1509.6	1525.6	3				IIIGG
			WEIS							1509.7	1535.7	3				IIIGG
			BOUL							1509.8	1709	3	1509.8	1709	3	IV
			OURN							1509.9	1526	3				IIIGG,N
			SGMR										1509.9	1515.3	3	IV
			HARV							1510	1524	3	1510	1524	3	IIIGG,V
			OURN				1510.1	1521.1	2	1510.1	1511.4	2				IV
			OURN				1511.8	1514.3	3							IIIGG
			SGMR										1515.3	1830.0	2	CONT
			HARV							1525	2202	1	1525	2202	1	IIIN
			HARV										1538	1641	1	IN
			WEIS							1611.1	1611.2					IIIB
			WEIS							1614.8	1614.9					IIIB
			WEIS							1621.5	1621.7					IIIB
			WEIS							1624.0	1624.5					IIIB
			WEIS							1625.3	1625.4					IIIB
	1642	1917	WEIS													
			HARV				1725	2210	1							IN
			BOUL							2133.9	2205	1	2133.9	2205	1	CONT
			CULG				2134	2136	2	2134	2136	2				IIIG
			CULG				2134	2400		2134	2400					IS,W
	2036	2400	CULG							2134	2400					IIIS,W
			CULG				2136	2155	1							CONT
			SGMR										2136.7	2142.8	3	IV
			CULG							2137	2150	3	2136.5	2141.5	2	IIIGG,V
			HARV				2137	2154	3	2134	2145	3	2134	2145	3	IIIGG,V
			HARV							2137	2400	2	2146	2244	2	I
			HARV				2137	2153	3							IV
	2135	2400	MANI										2137.0	2138.0	1	III
			CULG										2139	2220	1	
			CULG							2140	2310	1				CONT
			SGMR										2142.0	2420.0	2	CONT
			HARV							2147.5	2156	2	2149.5	2155	2	II
			CULG							2148	2155	1				UNCLF
			CULG				2201	2203	1							FASTDRIFT
			HARV				2201	2207	2							IIIGG,V
			CULG							2203.5	2400	1				S,RS,DP
			BOUL							2205	2400	3	2205	2400	3	IV
			CULG							2207	2400	1				I
			CULG				2234	2305	1							CONT
			HARV				2234	2306	3	2234	2305	2				IV
06	0000	0028	HARV							0000	0028 D	1				I
			CULG							0000	0710	1				IIIS
			CULG							0000	0705	1				S,RS,DP
	0000	0737	CULG				0000	0630	1	0000	0630	1				IS
	0000	0230	BOUL										0000	0210	1	CONT
			CULG							0141	0142	2				IIIG,V
			CULG				0245	0246	1	0245	0246	2	0245	0246	2	IIIG,V
	0000	0958	MANI										0245.1	0245.6	3	III
			CULG				0305	0306	1							FASTDRIFT
			MANI										0401.0	0401.4	1	III
			CULG							0536	0538	2				IIIG,V
			MANI										0536.5	0537.2	3	III
			CULG				0538.5	0540	1							UNCLF
			CULG							0538.5	0540.5	2				UNCLF
	0455	1812	OURN							0538.6	0539.2	2				UNCLF
			CULG							0540	0600	2				II
			MANU										0553.8	0554.4	3	III
			CULG				0554	0555	1	0554	0555	1				IIIG
			CULG							0621.5	0624	2				IIIG,V
			MANI										0622.1	0623.5	2	IIIG
			CULG							0650	0651	2				IIIG
			CULG							0655.5		2	0655.5		1	IIIB
			MANI										0655.7	0655.9	2	III
			CULG							0659	0702.5	2				IIIGG
			MANI										0659.8	0701.8	2	IIIG
			CULG				0700	0702	1							FASTDRIFT
			MANI										0733.3	0740.4	2	IIIG
			MANI										0753.8	0759.8	2	IIIG
			MANI										0813.3	0816.6	3	IIIG
			MANI										0832.4	0832.8	2	III
	0835	1918	WEIS							0835.0	0835.7	2				IIIG
	0843	1531	OWIN				0843	1200	1	0843	1200	1				I
			WEIS							0914.3	0915.0	2				IIIG
			WEIS							0936.1	0936.3	1				IIIG
			WEIS							0938.0	0938.6	1				IIIG
			WEIS							0940.3	0941.2	3				IIIG
			OWIN				0940.3	0940.8	3	0940.3	0940.8	3				IIIG
			MANI										0940.4	0940.6	2	III
			OURN							0949.5	0949.6	3				IIIG
			WEIS							0953.8	0953.9	1				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
06			WEIS							0955.3	0955.6	1				IIIB
			WEIS							0956.7	0956.8	1				IIIB
			WEIS							1003.2	1006.2	3				IIIGG
			OWIN				1004.2	1005.4	2	1004.2	1005.4	2				IIIGG
	0917	2419	SGMR										1004.3	1004.8	1	III
			WEIS							1008.7	1008.8	2				IIIB
			SGMR										1011.0	1440.0	2	CONT
			WEIS							1011.2	1012.2	3				IIIG
			WEIS							1014.5	1018.3	3				IIIGG
			OWIN				1014.6	1016.4	2	1014.6	1016.4	2				IIIGG
			OURN				1015.7	1127.4	3	1114.8	1027.4	3				IIIGG,N
			OWIN				1021.3	1021.5	2	1021.3	1021.5	2				IIIGG
			WEIS							1029.3	1029.5	1				IIIB
			WEIS							1032.3	1032.4	1				IIIB
			WEIS							1034.7	1039.8	3				IIIGG
			SGMR										1035.0	1039.8	3	IIIG
			OWIN				1035.7	1039.8	2	1035.7	1039.8	2				IIIGG
			OWIN				1102.8	1107.3	2	1102.8	1107.3	2				IIIGG
			WEIS							1103.2	1108.0	3				IIIGG
			SGMR										1103.2	1113.2	3	IIIG
			OURN				1105.4	1134.1	2	1105.7	1134.1	2				IV
			WEIS							1110.4	1113.7	3				IIIGG
			OWIN				1110.4	1147	3	1110.4	1147	3				IIIGG
			OURN				1110.5	1110.8	3	1110.5	1110.8	3				V
			WEIS							1114.7	1117.5	3				IIIG
			WEIS							1118.5	1118.6	1				IIIB
			WEIS							1120.4	1122.5	2				IIIG
			WEIS							1124.4	1126.2	3				IIIGG
			WEIS							1127.2	1127.4	2				IIIG
			WEIS							1135.9	1143.8	2				IIIG
			OWIN				1157.9		1							IIIB
			OWIN							1201.3	1203.9	1				IIIG
			WEIS							1201.3	1202.4	1				IIIG
			WEIS							1215.3	1218.7	1				IIIG
			WEIS							1222.1	1223.4	1				IIIG
			WEIS							1225.6	1225.7	1				IIIB
			WEIS							1233.1	1233.5	1				IIIG
	0843	1531	OWIN				1252.3	1252.6	1	1252.3	1252.6	1				IIIG
			OWIN				1253.8	1254.3	2	1253.8	1254.3	2				IIIG
			WEIS							1253.8	1256.4	2				IIIG
			OURN				1253.9	1254.0	2	1253.9	1254.0	2				IIIG
	1232	2400	HARV				1344		3							IIIG
			HARV				1347	1350	1	1347	1350	3	1347	1350	3	IIIGG
			OWIN							1347.3	1347.6	2				IIIG
			WEIS							1347.4	1349.7	3				IIIG
			SGMR										1347.5	1356.2	3	IIIG
			OWIN				1348.1	1350.0	2	1348.1	1350.0	2				IIIG
			OURN							1348.2	1348.3	2				UNCLF,RS
			OURN				1349.6	1349.9	2	1349.6	1349.9	2				IV
			WEIS							1352.4	1353.8	3				IIIG
			OWIN							1352.4	1352.6	2				IIIG
			BOUL							1352.4	2400	2	1352.4	2400	2	IIIN
			OWIN				1352.9	1353.3	2	1352.9	1353.3	2				IIIG
			HARV				1353		1	1352	1354	3	1352	1354	3	IIIGG
			WEIS							1355.8	1356.1	2				IIIB
			HARV							1356	1840	2	1356	1840	2	IIIN
	1400	2400	BOUL										1400	1920	1	CONT
			WEIS							1418.4	1419.2	2				IIIG
			HARV				1520	1521	1	1520	1521	2	1520	1521	2	IIIG
			OWIN				1520.2		1	1520.2		1				IIIB
			WEIS							1520.4	1520.8	2				IIIG
			SGMR										1520.5	1534.0	3	IIIG
			WEIS							1523.7	1524.4	3				IIIG
			HARV							1524	1525	3	1524	1525	3	IIIG,V
			OWIN				1524.2		1	1524.2		1				IIIB
			WEIS							1532.0	1533.5	3				IIIG
			OURN							1532.2	1532.2	3				III
			HARV				1533	1534	3	1532	1534	3	1532	1534	3	IIIG,V
			HARV				1621	1623	3	1621	1623	3	1621	1623	3	IIIGG
			SGMR										1621.0	1622.8	1	III
			WEIS							1621.2	1622.6	2				IIIG
			HARV				1642	1643	2	1642	1648	3	1642	1648	3	IIIGG,V
			WEIS							1642.5	1643.5	3				IIIG
			SGMR										1642.8	1648.0	2	IIIG
			WEIS							1645.9	1647.6	3				IIIG
			SGMR										1702.0	1707.1	1	IIIG
			HARV				1705	1707	1	1705	1708	2	1705	1708	2	IIIG
			WEIS							1706.7	1707.3	2				IIIG
			HARV							1716	1725	1	1716	1725	1	IIIGG
			SGMR										1716.0	2118.0	1	CONT
			HARV							1720	1726	2				I
			WEIS							1720.6	1720.7	1				IIIB
			WEIS							1722.3	1724.6	1				IIIG
			HARV							1732	1734	3	1732	1734	3	IIIG
			WEIS							1732.4	1733.7	2				IIIG
			HARV							1736	1739	2	1736	1739	2	IIIG
			HARV							1806	1807	3	1806	1807	3	IIIG
			WEIS							1806.1	1806.9	1				IIIG
			HARV							1807	1901	1				IN
			HARV				1844	1921	2							I

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION		STATION	EVENTS												SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	
06			HARV							1845	1854	3	1845	1854	3	IIIG
			BOUL										1845	1900	2	CONT
			WEIS							1849.7	1850.0	1				IIIG
			HARV				1855	1858	2	1855	1900	2	1855	1900	2	IIIGG
			HARV				1901	1906	3	1901	1905	3	1901	1905	3	IIIGG,V
			HARV							1901	1950	1				I
			HARV				1901	1926	2							IVP N
			SGMR										1901.7	1905.0	3	IV
			WEIS							1902.2	1902.7	2				IIIG
			HARV				1908	1919	3	1907	1922	2	1907	1922	2	IIIGG
			BOUL							1920	2020	2	1920	2020	2	IV
			HARV							1925	1931	3	1925	1931	3	IIIGG
			HARV							1933	2002	2	1935	2002	2	UNCLF
			HARV				1941	2014	3							IV
			HARV							1950		3	1950		3	IIIB
			HARV							2010	2011	3	2010	2011	3	IIIG
			HARV							2024		3	2024		3	IIIB
	2037	2400	CULG				2104	2118	1	2100	2400	1				IIIN
			HARV				2105	2106	1	2101	2106	3	2101	2106	3	IIIG
			CULG				2115.5	2116	1							FASTDRIFT
			HARV				2116	2118	3	2116	2118	3	2116	2118	3	IIIGG
			SGMR										2116.0	2118.0	2	IIIG
			CULG							2117	2118					IIIG,W
	2135	2400	MANI													
			CULG							2234						RS,DP,W
			BOUL										2300	2400	1	CONT
07	0000	0230	BOUL										0000	0200	1	CONT
	0000	0140	CULG							0000	0140	1				IIIN
	0000	0147	HARV													
			CULG							0033.5	0035.5	2				IIIG
			BOUL							0033.8	0034.8	2	0033.8	0034.8	2	IIIG
			BOUL							0123.4	0124.9	2	0123.4	0124.9	2	III
			CULG							0123.5	0125	2	0123.5	0125	1	IIIG,V
	0000	0958	MANI										0123.7	0124.6	2	III
	0200	0736	CULG							0200	0642	1				IIIN
			CULG							0308	0311	1				IIIGG
			CULG							0331	0332.5	1				IIIG
			CULG				0440	0446								IS,W
	0343	1021	WEIS							0441.0	0917.0	2				I
			CULG							0500	0710	1				IS
	0847	1450	OWIN				0847	1450	1	0847	1450	1				I
			WEIS							0856.7	0857.0	2				IIIG
	0456	1812	OURN							0902	1224					I,OC,N
			WEIS							0912.3	0912.5	1				IIIB
			WEIS							0913.7	0913.8	1				IIIB
			OURN				1010.4	1013.4	1	1013.0	1013.4	3				IIIGG
			WEIS							1013.0	1013.4	2				IIIG
			OWIN				1013.2	1013.4	2	1013.2	1013.4	2				IIIG
			WEIS							1017.4	1020.3	1				IIIG
	0917	2419	SGMR										1054.7	1055.1	2	III
	1230	2400	BOUL							1220	1226	1	1220	1226	1	IIIG
			OWIN				1221.2	1221.5	2							IIIG
			OURN				1221.5	1222.5	2	1224.5	1224.8	2				IIIGG
			SGMR										1221.8	1229.1	3	IIIG
			OWIN				1224.5	1224.8	3							IIIG
			OWIN				1224.8	1226.3	1	1224.8	1226.3	1				IV
			SGMR										1258.5	1402.2	2	CONT
			BOUL										1315	1453	1	CONT
			OWIN							1332.4		1				IIIB
			SGMR										1425.8	1512.6	2	IIIG
			BOUL										1512.5	1513.1	2	III
			BOUL										1610.7	1611.7	1	III
	1231	2400	HARV							1613	1614	3	1613	1614	3	IIIG,U
			BOUL							1613.1	1614.5	2	1613.1	1614.5	2	IIIG
	1416	1915	WEIS							1613.2	1614.1	2				IIIG
			SGMR										1613.3	2044.5	3	IIIG
			BOUL										1626.6	1627.3		IIIG
			HARV							1749		3	1749		3	IIIB
			BOUL							1749.1	1749.4	1	1749.1	1749.4	1	III
			WEIS							1749.2	1749.3	1				IIIB
			BOUL										1822.2	1822.9	1	III
			BOUL										1835	1950	1	CONT
			HARV							1838	1947	2	1838	1947	2	IIIN
			BOUL										1838.9	1839.5	1	III
			HARV							1843	1845	3	1843	1845	3	IIIGG
			WEIS							1843.7	1844.4	1				IIIG
			BOUL							1843.7	1845.2	1	1843.7	1845.2	1	IIIG
			BOUL							1941.9	1942.1	1	1941.9	1942.1	1	III
			HARV							2046	2049	3	2046	2049	3	IIIG
			BOUL							2046.7	2049.6	2	2046.7	2049.6	2	IIIG
	2036	2400	CULG				2104	2125	1							IS
			CULG							2113	2217	1				IS
			CULG							2117	2400	1				IIIN
			CULG							2121	2122	1				IIIG
			BOUL										2124.9	2126.7	1	IIIG
			BOUL										2229.9	2230.2	1	III
			BOUL										2312	2400	1	CONT
			CULG							2319	2320	1				IIIG,V
			BOUL							2328.8	2329.7	2	2328.8	2329.7	2	IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
07			CULG							2332.5	2333.5	1	2332.5	2333	1	IIIG,V
	2135	2400	MANI										2333.0	2339.1	I	II
			MANI										2339.9	2341.6	3	IIIG
			BOUL							2339.9	2343.2	3	2339.9	2343.2	3	IIIG
			CULG				2340	2341	1	2339	2343	2	2340	2342	2	IIIGG,V
			HARV							2340	2342	3	2340	2341	3	IIIGG
			SGMR										2340.1	2341.1	2	III
			BOUL							2342.5	2343.5	2	2342.6	2343.5	2	IIIG
08	0000	0230	BOUL										0000	0205	1	CONT
			CULG							0000	0709	1				IIIN
	0300	0737	CULG													
	0000	0147	HARV													
			CULG							0000.5		1				IIIB,U
			CULG							0021.5		2				IIIB,U
	0000	0958	MANI										0021.8	0022.2	1	III
			MANI										0146.9	0147.1	2	III
			CULG							0147		2				IIIB,U
			CULG							0149	0150	2	0149.5	0150	1	IIIG
			MANI										0149.0	0150.0	3	IIIG
			CULG							0235	0236	2	0235	0236	1	IIIG,U
			MANI										0235.5	0235.9	2	III
			CULG							0339		1				IIIB,U
			CULG							0345.5		1				IIIB,U
			CULG				0349.5	0350	2	0349.5	0352	2	0349.5	0352	2	IIIGG,V,U
			MANI										0349.6	0351.8	3	IIIG
	0344	1903	WEIS							0349.7	0350.0	2				IIIG,RS
			WEIS							0350.7	0351.5	2				IIIG
			CULG							0355	0356	2				IIIG,U
			WEIS							0355.5	0355.7	2				IIIB
			WEIS							0508.7	0508.9	2				IIIG
			WEIS							0611.9	0612.3	2				IIIG,RS
			CULG				0612	0612.5	1	0612	0613	2				IIIG,V,U
	0456	0822	DURN							0612.0	0612.2	3				III,V
			CULG							0626.5	0626.5	2				IIIG,V,U
			WEIS							0626.6	0626.7	1				IIIG
			MANI										0627.2	0627.6	1	III
			CULG							0631	0632	2				IIIG,U
			WEIS							0631.1	0631.2	1				IIIB
			CULG							0632.5	0633.5	2				IIIG,U
			WEIS							0632.6	0633.1	2				IIIG
			MANI										0632.8	0633.1	1	III
			CULG				0651.5	0652	1	0651.5	0652	2				IIIG,U
			WEIS							0651.7	0651.9	2				IIIG,U
			DURN							0651.8	0651.8	3				III
	0725	1607	DWIN				0725	1607	1	0725	1607	1				I
			DURN							0758.1	0801.3	3				IIIGG
			WEIS							0758.2	0758.9	3				IIIGG
			WEIS							0800.0	0802.4	3				IIIG
			WEIS							0932.7	0924.2	3				IIIG
			WEIS							0946.2	0946.5	2				IIIG
	0830	1810	DURN							1143.3	1143.9	2				IIIG
			WEIS							1143.5	1143.7	2				IIIG
	1232	2400	HARV							1232	1345	1				IN
			DWIN				1300.4	1300.8	1							IIIG
	1130	2400	BOUL							1323.4	1323.5	1	1323.4	1323.5	1	III
			WEIS							1426.7	1426.8	3				IIIB
			DWIN				1513.8	1514.4	1							IIIG
			HARV							1528	1529	1	1528		1	IIIG
			BOUL										1528.1	1528.4	1	III
			DURN				1539.8	1540.7	2							IIIG,RS
			HARV				1540	1544	3							UNCLF
			DURN							1541.9	1542.2	1				UNCLF
			DWIN				1549.6		1							IIIB
			DWIN							1555.8	1556.2	2				IIIG
			WEIS							1555.9	1556.0	2				IIIB
			HARV				1634	1636	3							I
			HARV							1646	1742	1				IN
			HARV							1741	1743	2				IIIG
			DURN							1741.6	1742.3	1				IIIG
			WEIS							1741.6	1742.3	2				IIIG
			BOUL							1741.9	1742.0	1				III
			BOUL							1751.5	1752.2	1	1751.5	1752.2	1	III
	0918	2418	SGMR										1751.6	1752.2	1	III
			SGMR										1812.6	1813.0	1	III
			HARV							1818	1819	1				IIIG
			BOUL										1820	2400	1	CONT
			BOUL							1821.4	1825.6	2	1821.4	1821.6	2	IIIG
			WEIS							1821.4	1821.5	2				IIIG
			HARV				1825	1826	1	1821	1826	2	1821	1824	2	IIIGG
			HARV				1829	1830	1	1829	1830	2				IIIG
			BOUL							1829.0	1829.4	2	1829.0	1829.4	2	III
			HARV							1857	1900	3	1857	1900	3	IIIGG
			BOUL							1857.2	1900.4	2	1857.2	1900.4	2	IIIG
			SGMR										1857.5	1859.0	2	IIIG
			WEIS							1858.3	1858.4	1				IIIB
			HARV				1953	1958	2	1954	2002	3	1957	2001	2	IIIGG,U
			BOUL										1957.5	2001.6	2	IIIG
			SGMR										1958.8	2001.0	1	IIIG
	2037	2400	CULG							2111	2400	1				IIIN,U

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
[illegible]	<135	2400	MANI													
			CULG				2143.5	2144	2	2143.5	2145	2				IIIG,U
			HARV				2144	2145	3	2143	2145	3				IIIG
			HARV							2305	2306	2				IIIG
			CULG							2305	2306	2				IIIG,U
			CULG							2316.5	2317	2				IIIG,U
			HARV							2353		2				IIIG
09	0000	0715	CULG							0000	0715	1				IIIN,U
	0000	0230	BOUL										0000	0115	1	CONT
	0000	0147	HARV							0003	0128	1				IN
			HARV							0007	0009	3	0007	0008	3	IIIG,U
			BOUL							0007.5	0009.0	3	0007.5	0009.0	3	III
			CULG							0007.5	0009	2	0007.5	0008.5	2	IIIG,V,U
	0000	0959	MANI										0007.5	0008.6	3	III
			CULG										0149	0215	1	
			CULG							0151	0152	2				IIIG,U
			MANI										0255.5	0259.6	3	IIIG
			CULG				0257.5	0259	2	0255	0259.5	2	0255.5	0259	2	IIIGG,V,U
			CULG				0304	0305								IIIG,W
			CULG							0415	0715	1				IS
			CULG							0512.5	0514.5	2				IIIG,V
			MANI										0512.5	0514.0	2	IIIG
	0455	1835	DURN				0519.9	0520.4	1	0519.9	0523.8	3				IIIGG
			CULG				0520	0521	1	0520	0523	2				IIIGG,V
			MANI										0520.5	0524.6	3	IIIG
			CULG				0523	0524	2	0523	0526	2				IIIGG,V
			CULG				0540	0710								IS,W
			DURN							0540	1835 D	2				I,DC,N
			CULG							0620	0621	2				IIIG,V,U
			CULG							0621	0622.5	1				IIIG,U
	0740	1603	OWIN				0740	1603	1	0740	1603	1				IC
			DURN							0808	0838	3				I,DC
			MEIS							0808.0	1424.0	1				I
			DURN				0914.6	0920.6	1	0918.0	0918.6	2				IIIG,N
			DURN				0918.5	0918.8	2							IV
	0719	1915	MEIS							0918.6	0918.8	1				IIIG
			MEIS							1107.7	1108.3	2				IIIG
	0919	2418	SGMR										1108.2	1109.1	2	III
			DURN				1135.5	1136.2	3							IIIGG,RS
			MEIS				1141.7	1142.3	1							IIIG
			DURN				1141.9	1143.0	3							IIIGG
			OWIN							1148.9	1155.6	2				IIIG
			SGMR										1157.0	1215.7	3	IIIG
			MEIS							1158.8	1200.2	3				IIIG
			DURN							1159.4	1159.5	2				IIIG
	1200	2400	BOUL							1213.8	1215.5	2	1213.8	1215.5	2	IIIG
	1231	2400	HARV							1231 E	2000	1				I
			DURN							1248	1346	3				I,DC
			BOUL										1313.3	1313.6	1	III
			SGMR										1313.5	1313.7	1	III
			HARV				1352	1358	3	1356	1359	3	1356	1359	3	IIIGG,U
			DURN				1352.5	1357.5	2	1352.6	1358.2	3				IIIGG
			MEIS							1352.7	1353.0	2				IIIG
			OWIN				1352.8	1553.2	3							IIIG
			BOUL							1354.8	1359.5	3	1354.8	1359.5	3	IIIG
			SGMR										1355.0	1400.0	3	IIIG
			OWIN				1355.1	1358.3	2							IIIG
			MEIS				1355.8	1356.9	3							IIIGG
	0740	1603	OWIN							1356.4	1357.2	2				IIIG
			DURN							1356.8	1357.5	2				V
			DURN				1358.1	1358.2	1	1358.1	1358.2	2				UNCLF
			BOUL							1359.5	1415	1	1359.5	1415	1	IV
			BOUL							1405.6	1415.0	2	1405.6	1415.0	2	II
			SGMR										1406.2	1412.3	2	II
			BOUL							1406.4	1415.0	1				II
			HARV							1407	1409	2				UNCLF
			HARV				1447	1450	3	1447	1448	1				IIIGG
			MEIS							1447.0	1448.5	2				IIIG
			OWIN				1447.0	1447.3	2	1447.0	1447.3	2				IIIG
			DURN				1447.2	1448.0	2	1447.1	1448.6	3				IIIGG
			HARV				1548	1551	3	1548	1549	3	1548	1549	2	IIIGG
			MEIS							1548.3	1549.6	2				IIIG
			OWIN				1548.3	1449.0	2	1558.3	1449.0	2				IIIG
			BOUL							1548.5	1549.6	2	1548.5	1549.6	2	III
			DURN				1548.5	1549.3	2	1548.4	1549.3	3				III
			SGMR										1548.7	1549.7	2	III
			BOUL										1556.2	1556.4	1	III
			BOUL										1649.9	1650.0	1	III
			HARV				1704	1705	3	1704	1705	2				IIIG
			DURN				1704.3	1704.4	2	1704.4	1704.4	3				IIIG
			BOUL							1715.9	1718.6	2	1715.9	1718.6	2	III
			MEIS							1716.7	1717.2	2				IIIG
			DURN				1716.9	1717.0	2	1716.9	1717.0	1				IIIG
			HARV				1717		2	1716	1719	2	1716	1719	2	IIIG
			SGMR										1717.0	1717.6	1	III
			HARV				1731	1735	3							IIIGG
			HARV				1853	1856	3	1854	1855	3				IIIGG,U
			BOUL							1854.1	1855.7	2	1854.1	1855.7	2	III
			SGMR										1854.1	1855.0	1	III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS
JULY 1974

JUL 1974	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
09			WEIS							1854.3	1854.4	2				IIIB
			HARV							2000	2400	1				IN
	2057	2400	CULG				2106	2400	1	2106	2400	1				IS
			CULG							2110	2400	1				IIIN,U
	2135	2400	MANI													
			BOUL										2143.9	2144.3	1	III
			CULG				2214	2214.5	1							RS
			HARV				2214		3							IIIG
10	0000	0147	HARV							0000	0019	1				IN
	0000	0405	CULG							0000	0030	1				IS
			CULG							0000	0030	1				IIIN
	0000	0230	BOUL													
	0000	0959	MANI													
			HARV							0019	0147	2				I
			CULG							0030	0320	2				IS
			CULG							0030	0407	1				IIIS
			CULG							0320	0407	1				IS
			CULG							0353.5		1				IIIB,U
	0445	0714	CULG							0445	0705	1				IS
			CULG							0445	0700					IIIS,W
	0434	1833	DURN							0513	1833 D	1				I,N
	0349	1912	WEIS							0520.0	1446.0	1				IN
	0919	2417	SGMR													
	1123	1550	OWIN				1123	1550	1	1123	1550	1				I
	1231	2400	HARV							1316	1703	1				IN
	1130	2400	BOUL										1435.8	1436.4	1	III
			OWIN							1536.8		2				IIIB
			BOUL										1732.6	1733.0	1	III
			HARV							1924	2400	1				I
	2055	2400	CULG							2102	2400	1				IIIS
			BOUL							2102.2	2104.6	1	2102.2	2104.6	1	IIIG
			CULG				2122	2400		2110	2400					IS,W
			BOUL										2134.5	2134.9	1	III
	2136	2400	MANI													
			BOUL							2302.8	2303.0	1	2302.8	2303.0	1	III
			BOUL										2327.1	2327.3	1	III
			BOUL										2338.7	2338.9	1	III
			BOUL										2355.9	2356.6	1	IIIG
11	0000	0230	BOUL							0000	0146.9	1	0000	0146.9	1	IIIN
	0000	0716	CULG							0000	0708	1				IS
			CULG							0000	0655	1				IIIS
			CULG				0000	0637								IS,W
	0000	0147	HARV							0000	0146	1				I
			WEIS							0426.0	1344.0	1				IN
	0435	1835	DURN							0435 E	1835 D	2				I,DC,N
			CULG							0435	0436	1				IIIG,U
	0349	1632	WEIS							0435.5	0435.8	1				IIIB
	0000	0959	MANI										0435.7	0436.0	1	III
	0727	1557	OWIN				0727	1557	1	0727	1557	1				I
			OWIN				1005.0	1005.3	1	1005.0	1005.3	1				IIIG
	1130	2400	BOUL										1225	1942	1	CONT
	1232	2400	HARV							1232 E	1702	1				I
			OWIN				1248.8	1249.2	1	1248.8	1249.2	1				IIIG
	1647	1914	WEIS							1248.9	1249.2	1				IIIG
	0920	2417	SGMR										1416.9	1417.3	1	III
			HARV							1608	1609	1	1608	1609	1	IIIG
			WEIS							1608.3	1609.0	1				IIIU
	2154	2400	CULG				2103	2400								IS,W
			CULG							2110	2400	1				IIIS
	2136	2400	MANI													
			BOUL										2142.4	2142.7	1	IIIG
			BOUL							2214.0	2214.4	1	2214.0	2214.4	1	III
			BOUL										2218.3	2218.7	1	III
			BOUL										2318.4	2318.6	1	III
12	0000	0959	MANI													
	0000	0641	CULG							0000	0641	1				IIIS
			CULG							0000	0641	1				IS
			CULG				0000	0641								IS,W
	0000	0147	HARV													
	0000	0230	BOUL							0017.6	0017.9	1	0017.6	0017.9	1	III
	0435	0854	DURN							0531	1835 D	3				I,DC,N
	0350	1907	WEIS							0602.0	1540.0	1				IN
	0736	1311	OWIN				0736	1311	1	0736	1311	1				I
			OWIN				0900.4	0900.6	1	0900.4	0900.6	1				IIIG
	0904	1835	DURN													
	1130	2400	BOUL										1215	1620	1	CONT
	3222	46	HARV							1232 E	2246 D	1				I
	1231	2400	HARV							1338	1917	1				IN
			HARV				1854	2036	1							IN
	0921	2416	SGMR										1903.7	1904.0	1	III
			HARV							1918	2248	1				I
			BOUL							1918.1	1918.4	1	1918.1	1918.4	1	III
			BOUL										2010	2130	1	CONT
			SGMR										2020.2	2020.6	1	III
	2100	2400	CULG				2100	2400	1	2100	2400	1				IS
			CULG							2104	2400	1				IIIS
	2137	2400	MANI													

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION		STATION	EVENTS													SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
12			HARV							2353	2400	1					I
13	0000	0147	HARV														
			CULG				0000	0547		0000	0647						IS,W
	0000	0647	CULG							0000	0647	1					IIIS
	0000	0959	MANU														
	0353	0554	WEIS														
	0436	1832	DURN							0436 E	1832 D	2					I,OC
	1130	2400	BOUL														
	1232	2400	HARV				1237	1401	1	1239	1448	1					IN
	0922	2416	SGMR										1453.1	1453.4	1		III
			SGMR										1800.9	1801.2	1		III
			HARV				1812	1852	1								IN
	1847	1908	WEIS														
			HARV				1858	2400	1	1900	2031	1					I
	2059	2400	CULG				2102	2400	1	2102	2400	1					IS
			CULG							2104	2400	1					IIIS
	2137	2400	MANI														
			HARV							2144	2317	1					IN
			HARV							2317	2400	1					I
14	0000	0147	HARV				0000	0147	1	0000	0147	1					I
			CULG							0000	0716	1					IIIS
	0000	0716	CULG				0000	0716	1	0000	0045	1					IS,OC
	0000	1000	MANI														
	0000	0230	BOUL														
			CULG							0045	0716	2					IS,OC
	0436	1835	DURN							0436 E	1835 D	3					I,C,DC
	0353	1905	WEIS							0442	1740	2					IDC
	0922	2415	SGMR														
	1130	2400	BOUL														
	1231	2400	HARV				1233	2256	1	1237	2400	1					I
	2059	2400	CULG				2102	2400	1	2102	2400	1					IS,OC
			CULG							2105	2400	1					IIIS
	2137	2400	MANI														
15	0000	1000	MANI														
	0000	0230	BOUL														
	0000	0645	CULG				0000	0635	1	0000	0512	1					IS
			CULG							0000	0625						IIIS,W
	0000	0146	HARV				0008	0143	1	0003	0143	1					IN
			CULG							0048		1					IIIB,U
	0355	0729	WEIS							0426.0	1648.0						IN,DC
	0437	1834	DURN							0437 E	1834 D	2					I,C,DC
	0737	1910	WEIS														
	0825	1528	OWIN				0825	1528	1	0825	1528	1					IC
	0923	2415	SGMR														
			OWIN				1029.6	1030.0	2	1029.6	1030.0	2					IIIG
			OWIN				1049.8		1								IIIB
			OWIN							1050.3		1					IIIB
	1130	2400	BOUL														
	1231	2246	HARV														
	2059	2400	CULG				2101	2400	1	2115	2400	1					IS
			CULG							2119	2400						IIIS,W
	2138	2400	MANI														
16	0000	1000	MANI														
	0000	0230	BOUL														
			CULG							0000	0721	1					IIIS,U
	0000	0721	CULG				0000	0550	1	0000	0525	1					IS
			CULG							0353	0354	1					IIIG
			CULG							0358	0359	1					IIIG,U
	0437	0808	DURN							0437 E	1833 D	2					I,C,DC
			CULG				0550	0721	1	0525	0721	2					IS
			WEIS							0743.0	1443.0	2					IN
	0815	1833	DURN														
	0830	1559	OWIN				0830	1559	1	0838	1559	1					IC
	0741	1443	WEIS							0926.4	0926.5	1					IIIG
	1232	2245	HARV							1239	1952	1					I
	1300	2400	BOUL										1335	2400	1		CONT
	1517	1909	WEIS														
			HARV							1719	1848	1	1719	1848	1		IIIN
	0924	2414	SGMR										1730.5	1744.0	1		IIIG
			HARV							1952	2242	1					IN
	2057	2400	CULG				2101	2400	1	2109	2400	1					IS
			CULG							2118	2400	1					IIIS,U
	2138	2400	MANI														
17	0000	1000	MANI														
	0000	0230	BOUL										0000	0205	1		CONT
	0000	0641	CULG				0000	0641	1	0000	0641	1					IS
			CULG							0000	0641	1					IIIS
	0438	1835	DURN							0443	1835 D	1					I,O,N
	0732	1556	OWIN				0732	1556	1	0732	1556	1					IC
	0357	1336	WEIS							1204.0	1209.0	2					IIIG
	1231	2245	HARV														
	0925	2413	SGMR										1302.8	1302.9	1		III
	1355	1904	WEIS														
			OWIN				1557.4	1557.6	1								IIIG
	2100	2400	CULG				2100	2400	1	2100	2400	1					IS

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION		STATION	EVENTS														SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND					
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.			
17			CULG							2105	2400							IIIS,W
	2138	2400	MANI															
18	0000	1000	MANI															
	0000	0230	BOUL															
	0000	0644	CULG				0000	0644	1	0000	0644	1						IS
			CULG							0000	0644							IIIS,W
			CULG				0239		1	0239		1						IIIB
	0355	0441	WEIS															
	0438	1834	OURN							0607	1652	2						I,N
	0703	1908	WEIS															
	0821	1553	OWIN				0821	1553	1	0821	1553	1						IW
			OWIN							0911.8	0912.2	1						IIIG
	1231	2245	HARV							1237	2006	1						IN
	1130	2400	BOUL										1611.9	1612.5	1			III
	0926	2413	SGMR										1612.0	1612.6	1			III
			BOUL							2008.4	2400	2	2008.4	2400	2	IV		
			SGMR										2036.0	2415.0	1			CONT
			CULG							2100	2400							IIIS,W
			CULG							2100	2400	1						IS
	2059	2400	CULG				2100	2125	1	2100	2400	1						CONT
	2138	2400	MANI															
19	0000	1000	MANI															
	0000	0230	BOUL							0000	0130	1	0000	0130	1	IV		
	0000	0645	CULG							0000	0645	1						IS
			CULG							0000	0645							IIIS,W
			CULG				0240	0240.5	1	0240	0240.5	1						IIIG
	0400	1154	WEIS															
	0439	1832	OURN															
	0927	2412	SGMR															
	1130	2400	BOUL															
	1218	1907	WEIS															
	1231	1700	HARV															
	2100	2400	CULG				2104	2400		2100	2400							IS,W
			CULG							2113	2400							IIIN,W
	2138	2400	MANI															
20	0000	0448	MANI															
	0000	0230	BOUL															
			CULG							0000	0646							IIIN,W
	0000	0646	CULG				0000	0255		0000	0200							IS,W
	0400	1711	WEIS															
	0439	0924	OURN															
	0459	0523	MANI															
	0553	1000	MANI															
	0929	2411	SGMR															
	0939	1834	OURN															
	1130	2400	BOUL							1938.9	1939.1	1	1938.9	1939.1	1			III
			BOUL										2052.8	2053.0	1			III
	2052	2400	CULG				2059	2400										IS,W
			CULG							2125	2400							IIIN,W
	2138	2400	MANI															
			CULG							2307		1						IIIB
			BOUL										2307.1	2307.4	1			III
			CULG							2309.5	2310	1						IIIG
			BOUL										2312.0	2312.3	1			III
21	0000	0230	BOUL															
	0000	1000	MANI															
	0000	0722	CULG							0000	0722							IIIN,W
			CULG							0705	0712	1						IIIGG
	0440	1832	OURN							0945	1120	1						I,N
	1130	2337	BOUL							1728.7	1731.1	2	1728.7	1731.1	2			IIIG
	0929	2410	SGMR										1728.8	1730.4	2			III
			BOUL										1731	1820	1			CONT
			BOUL							1740.0	1741.2	1	1740.0	1741.2	1			IIIG
			CULG							2100	2400							IIIN,W
	2100	2400	CULG							2100	2400	1						IS
	2138	2400	MANI															
			CULG							2238		1						IIIB
22	0000	0708	CULG							0000	0708	1						IS
			CULG							0000	0055							IIIN,W
	0000	1000	MANI															
			CULG							0055	0307							IIIS,W
			CULG							0307	0553							IIIN,W
	0440	1832	OURN															
			CULG							0553	0708	1						IIIS
	0741	1621	OWIN				0741	1621	1	0741	1621	1						IC
	0659	1902	WEIS							1058.4	1130.3	2						IIIGG
	0929	2409	SGMR										1108.4	1204.0	2			CONT
			OWIN				1120	1125	1							IV		
			CULG							2059	2315							IIIN,W
	2059	2400	CULG							2059	2400	1						IS
			CULG							2315	2400	1						IIIS
			CULG				2340	2400										IS,W
	2139	2400	MANI										2345.7	2345.9	1			III
23	0000	1000	MANI															

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION		STATION	EVENTS													SPECTRAL TYPE
				CENTIMETRIC BAND			DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND				
	START UT	END UT		START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.	START UT	END UT	INT.		
23			CULG				0000	0005	1	0000	0637	1					IS
	0000	0637	CULG							0000	0110	1					IIIS
			CULG							0110	0637	1					IIIN
	0404	1129	WEIS														
	0440	0905	DURN														
	0736	0947	DWIN														
	0930	2409	SGMR														
	1140	1901	WEIS														
	1231	2246	HARV														
	2059	2400	CULG							2059	2400	1					IS
	2109	2342	BOUL														
			CULG							2132	2400	1					IIIN
	2139	2400	MANI														
24	0000	0555	MANI														
	0000	0641	CULG							0000	0310	1					IS
			CULG							0029	0626						IIIN,W
	0405	1555	WEIS														
	0603	1000	MANI														
	1231	2238	HARV							1723	1724	2	1723	1724	2		IIIG,U
	1603	2400	BOUL							1723.2	1723.8	3	1723.2	1723.8	3		III
	0931	2408	SGMR										1723.4	1723.7	1		III
	1602	1903	WEIS							1725.3	1725.4	1					IIIB
			BOUL							1853.7	1854.0	2	1853.7	1854.0	2		III
			BOUL							1908.9	1910.0	2	1908.9	1910.0	2		IIIG
			HARV							1909	1910	3	1909	1910	3		IIIG
			SGMR										1909.7	1910.2	2		III
	2057	2400	CULG							2118		1					IIIB
			CULG							2119	2347	1					IIIN
	2139	2400	MANI														
			BOUL										2346.5	2346.6	1		III
25	0000	1000	MANI														
	0000	0640	CULG							0002	0640						IIIN,W
	0406	1858	WEIS														
			CULG							0448	0449	2					IIIG,U
	0824	1832	DURN														
	0854	1545	DWIN				0954.3	0954.5	1	0954.3	0954.5	1					IIIG
			DWIN							1250.3	1250.5	1					IIIG
	1424	2400	BOUL														
			DWIN				1500	1545	1	1500	1545	1					IW
	0932	2407	SGMR										1745.5	1745.8	1		III
	2057	2400	CULG							2130	2400						IIIN,W,U
	2140	2400	MANI														
26	0000	0738	CULG							0000	0738	1					IIIN,U
	0000	0230	BOUL							0148.7	0149.4	2	0148.7	0149.4	2		III
			CULG							0149		1					IIIB
			CULG							0334	0335.5	1					IIIG,U
			CULG				0414.5	0415	1	0414	0415	2					IIIG,U
	0407	0544	WEIS							0416.4	0416.7	2					IIIG
			CULG				0614	0615	1	0614	0616	2					IIIG,U
	0442	0810	DURN				0614.2	0614.4	1	0614.2	0614.4	2					IIIG
	0000	0642	MANI										0614.4	0614.8	2		III
	0650	1002	MANI														
			CULG							0655	0720	2				II	
	0734	1544	DWIN				0816.6	0817.8	1	0816.6	0817.8	1					IIIGG
			DWIN				1014.8	1015.1	1	1014.8	1016.0	1					IIIG
			DWIN				1155	1544	1								IW
			DWIN							1311.1	1312.0	2					IIIG
			DWIN				1430.8	1435.3	2	1432.5	1434.3	2					IIIGG
	0818	1834	DURN							1431.4	1432.6	2					IIIG
	1200	2400	BOUL										1619.5	1621.0	1		IIIG
	1232	2246	HARV							1723	1724	3	1723	1724	3		IIIG
			BOUL							1723.8	1724.2	2	1723.8	1724.2	2		III
	0933	2406	SGMR										1723.9	1724.5	1		III
			HARV							1916	1917	3	1916	1917	3		IIIB
			BOUL							1916.6	1916.7	1	1916.6	1916.7	1		III
			SGMR										1916.8	1917.0	1		III
	2039	2055	CULG														
			HARV							2123	2125	2	2123	2124	2		IIIG
			BOUL							2123.6	2124.6	2	2123.6	2124.6	2		IIIG
			SGMR										2123.8	2124.5	1		III
			BOUL										2203.6	2204.2	1		III
			HARV							2228	2234	3	2228	2231	3		IIIGG,V
	2227	2400	CULG				2228	2231.5	1	2227	2232	2	2229	2230	1		IIIG,V
			BOUL							2228.2	2232.2	3	2228.2	2232.2	3		IIIG
			SGMR										2228.5	2230.2	2		III
	2140	2400	MANI										2228.7	2229.8	2		III
			CULG				2229.5	2234	1	2229.5	2248	2				II	
			CULG							2230	2400	1					IS
			BOUL							2239.0	2245.3	2	2244.6	2248.9	2	II	
			CULG							2312.5	2400						IIIN,W
27	0000	0738	CULG							0000	0700						IIIN,U
			CULG							0000	0705	1					IS
	0000	1004	MANI														
			CULG							0032	0034	1					IIIG,U
	0000	0230	BOUL							0032.5	0034.0	2	0032.5	0034.8	2		IIIG
			BOUL							0044.8	0045.0	1					III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
27			CULG							0148	0149	1				IIIG
			CULG				0150	0700	1							IIIN
	0443	1834	OURN							0504	0550	1				I
			CULG							0657	0658	2				IIIG,U
	0934	2405	SGMR													
	1200	2400	BOUL													
	1222	1654	WEIS													
	1231	2245	HARV													
	2038	2400	CULG							2058	2400	1				IS
			CULG							2058	2400					IIIS,W
			CULG							2151.5		1				RS,OP
	2140	2400	MANI													
			CULG							2356.5		1				RS,OP
28	0000	0738	CULG							0000	0738	1				IS
			CULG							0000	0738	1				IIIS
	0000	1010	MANI													
	0000	0230	BOUL													
			CULG				0057	0738	1							I
			CULG							0159.5		1				OP
	0410	0525	WEIS													
	0443	1831	OURN							0502.5	1831 0	2				I,C,OC
			CULG							0522		1				RS,OP
	0936	2404	SGMR													
	1200	2400	BOUL													
	1231	2246	HARV							1257	1915	1				IN
	2038	2400	CULG				2052	2400		2052	2400	1				IS,OC
			CULG							2055	2400	1				IIIS
			HARV							2055	2102	1	2055	2102	1	IIIG
	2141	2400	MANI													
			CULG				2320		1	2320		1	2328		1	IIIB
29	0000	0738	CULG							0000	0738	1				IIIS
			CULG							0000	0738	1				IS,OC
			CULG				0000	0738	1							IS,W
	0000	1015	MANI													
	0000	0230	BOUL													
			CULG							0022		1				RS,OP
	0444	1834	OURN							0444 E	1213	2				I,OC
	1231	2246	HARV													
			OURN							1311.9	1312.0	2				III
	1049	1551	OWIN				1311.9	1312.2	2	1311.6	1312.2	2				IIIG
	0936	2403	SGMR										1312.0	1312.8	2	III
	1200	2400	BOUL							1312.2	1312.8	1				IIIG
			BOUL										1549.3	1549.5	1	III
			SGMR										1549.4	1549.6	1	III
			SGMR										1652.7	1653.0	1	III
	2039	2400	CULG							2055	2400	1				IS,W
			CULG							2131	2400					IIIN,W
	2142	2400	MANI													
30	0000	0230	BOUL													
	0000	0738	CULG							0000	0650					IIIN,W
			CULG							0000	0355					IS,W
			CULG							0232	0235	2				IIIG
	0000	1015	MANI										0232.2	0233.9	2	IIIG
			CULG							0305.5	0306	2				IIIG
			CULG							0404.5	0406.5	2	0405.5	0406	1	IIIG
			MANI										0405.8	0406.1	1	III
			CULG							0429	0430	2				IIIG
			MANI										0429.4	0429.8	1	III
			CULG							0431.5		1				IIIB
	0444	0738	OURN													
			MANI										0509.9	0513.0	3	IIIG
			CULG				0512	0512.5	1	0509	0513.5	2	0510	0512.5	1	IIIGG,U
			CULG							0646	0647	2				IIIG
	0744	1547	OWIN													
	0759	1834	OURN													
	1412	1855	WEIS													
	1231	2246	HARV							1826	1828	2	1826	1828	2	IIIGG
	0937	2402	SGMR										1827.8	1840.0	1	IIIG
			HARV							1838	1840	2	1838	1840	2	IIIGG
	2142	2400	MANI													
	2039	2400	CULG							2225	2354					IIIN,W
	1400	2400	BOUL							2247.4	2247.6	1	2247.4	2247.6	1	III
			CULG							2247.5		1				IIIB
31		1847	WEIS													
	0000	0449	CULG				0000	0240								IS,W
	0000	0230	BOUL													
	0000	1015	MANI													
			CULG							0052.5	0449					IIIN,W
			CULG				0057	0058	1							FASTDRIFT
			CULG				0422	0423	1							UNCLF
			CULG							0425	0439	1				IIIHB
	0445	1832	OURN													
	0610	0738	CULG													
	0748	1545	OWIN				0922.3	0923.2	1							IIIG
			OWIN				0926.0	0926.3	2	0926.0	0926.3	2				IIIG
			OWIN				0926.3	0930.0	1							IV

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1974

JUL 1974	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
5			OWIN				1200	1545	1							IW
	1200	2400	BOUL													
	1245	2246	HARV							1905	1906	3	1905	1906	3	IIIG
	0938	2400	SGMR										1906.0	1906.6	1	III
	2142	2400	MANI													
	2038	2400	CULG							2311	2315	1				I

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of bursts
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity

Note: Commencing 1974 April 1, the frequency range of the spectral equipment at the Harvard Radio Astronomy Station, Fort Davis, Texas, was reduced to 25-320 MHz for the sunspot minimum. The frequency range was temporarily increased to 25-2000 MHz for the period 1974 July 5 1730 UT to July 15 0146 UT.

SELECTED SOLAR EVENTS

JULY 1974

Culgoora

UT Date 1974. JULY	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions: Central Dist. ($R_\odot$)	Positions: Position Angle (Deg.)	Polarization	Intensity (1-3)		
June 30	-	2241	160	.8	50	0	1	II	Recording started with event in progress.
			80	.9	50	0	2		
			43.25	1.0	50	-	3		
July 4	0056	0059	80	0.7	180	0	1	III GG,V	
			43.25	1.0	180	-	3		
4	0256	0258	160	0.2	180	0	1	III G,V	*
			80	0.2	90	0	2		
			43.25	0.2	90	-	3		
5	-	~2300	160	0.5	230	r	2	IVs	Recording started with event in progress
			80	0.8	270	r	1		
6	0245	0247	160	1.1	280	0	2	III G,V	*
			80	0.8	270	0	3		
			43.25	1.0	310	-	3		
7	2339	2343	160	1.0	270	0	2	III GG,V	
			80	1.0	270	0	3		
			43.25	1.0	310	-	3		
9	0255	0259	160	1.0	120	0	3	III GG,V U	Complex source structure
			80	1.0	120	0	3		
			43.25	1.4	120	-	3		
23	2310	2358	160	0.4	135	ℓ	2	IVs	
			80	0.4	170	ℓ	2		
			43.25	0.4	190	-	1		
25	0448	0450	160	0.8	110	0	1	III G, U	
			80	1.0	90	0	2		
			43.25	1.4	80	-	1		
26	0413	0415	160	0.5	135	0	3	III G, U	*
			80	0.7	120	0	2		
			43.25	1.2	90	-	1		
30	0232	0235	160	0.7	250	0	1	III G	*
			80	0.9	280	0	2		
			43.25	1.5	280	-	3		

Days without Heliograph observations: .....Nil.....

* Other type III observed at same position during day.

COSMIC RAY INDICES

(Neutron Monitors)

JULY 1974

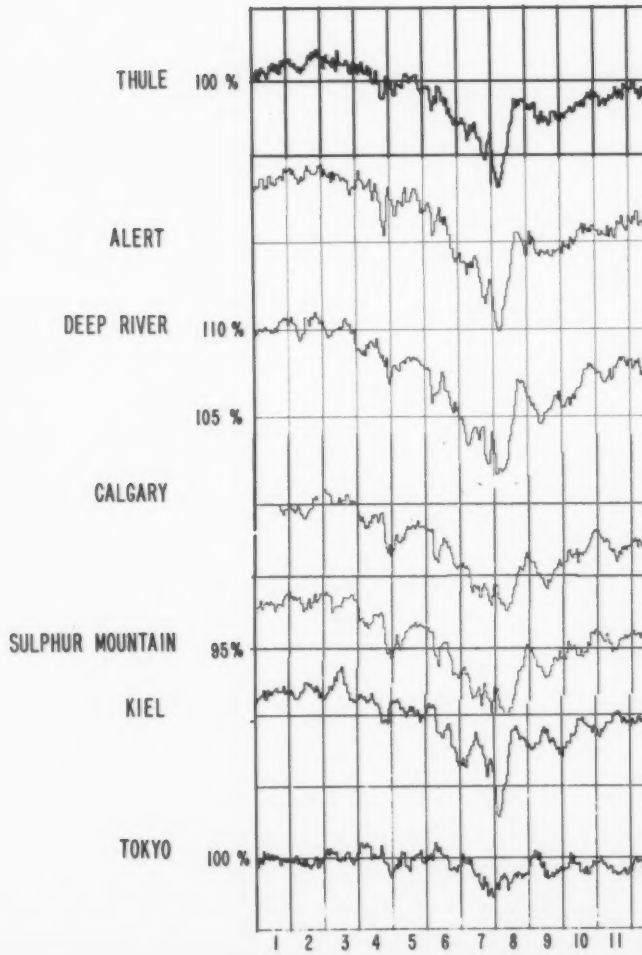
JULY	THULE	ALERT	DEEP RIVER	CALGARY	SULPHUR MT	KIEL	TOKYO
	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr
1	4379.8	7246.8	6776.0	11662.1(7)	8612.8	6137.4	3478.0
2	4405.0	7277.5	6788.2(23)	11670.3(21)	8635.2	6147.5	3470.0
3	4401.5	7256.5	6769.5	11748.7	8636.2	6162.1	3485.2
4	4358.0	7197.5	6685.0	11530.8	8476.3	6087.0	3486.7
5	4340.0	7169.8	6648.6	11470.4	8430.7	6067.6	3473.0
6	4285.2	7071.4	6551.6	11332.4	8312.7	5984.6	3477.7
7	4186.6	6894.3	6388.9	11040.3	8084.4	5872.5	3434.7
8	4176.5	6872.7	6413.0	11027.0	8095.0	5845.3	3428.2
9	4247.5	6979.8	6492.1	11143.3	8245.5	5928.1	3457.0
10	4271.7	7030.5	6566.1	11328.5	8348.8	5974.3	3457.7
11	4302.2	7054.6	6623.6	11351.3	8388.1	6012.1	3452.7
12	4320.2	7089.2	6643.4	11393.1	8405.8	6028.7	3451.9
13	4326.3	7093.7	6625.3	11431.1	8387.9	6018.4	3451.7
14	4335.6	7117.0	6624.3	11428.7	8395.5	6022.5	3461.0
15	4344.1	7118.3	6660.1	11462.5	8439.3	6040.5	3473.5
16	4373.9	7169.9	6691.8	11483.6	8461.1	6060.2	3479.6
17	4379.1	7176.0	6685.3	11515.8	8489.5	6065.3	3475.5
18	4344.4	7128.0	6642.7	11461.6(23)	8423.0	6029.1	3460.0
19	4325.9	7087.8	6624.1	11417.9(9)	8389.9	6006.0	3464.8
20	4341.9	7111.9	6641.3	11391.2	8369.9	6019.2	3465.1
21	4325.8	7077.0	6630.4	11397.0	8361.5	5979.3	3475.1
22	4343.8	7116.3	6635.5	11421.9	8394.9	6009.5	3481.8
23	4332.1	7101.0	6623.2	11397.9	8378.6	6034.8	3488.2
24	4312.4	7056.5	6598.2	11362.2	8351.4	6008.2	3477.7
25	4321.1	7062.8	6609.0	11375.9	8355.3	6014.2	3482.0
26	4338.6	7100.0	6635.3	11441.4	8405.8	6019.7	3493.5
27	4388.0	7169.9	6683.3	11537.3	8488.2	6075.5	3506.4
28	4428.9	7238.5	6759.7	11683.3	8571.3	6128.4	3521.6
29	4477.0	7321.3	6825.6	11793.6	8687.8	6173.0	3536.6
30	4509.8	7376.3	6895.6	11939.1	8816.1	6240.4	3562.5
31	4507.8	7381.0	6901.0	11955.5	8797.1	6249.4	3568.5
MEAN	4346.2	7133.7	6656.0	11470.0	8472.1	6046.5	3479.9

( ) Number of hours for which data are available if less than 24.

Thule, Alert, Calgary, Sulphur Mountain and Kiel Scaling Factors = 100.
Deep River Scaling Factor = 300.
Tokyo " " = 128.

See *Descriptive Text* for other characteristics.

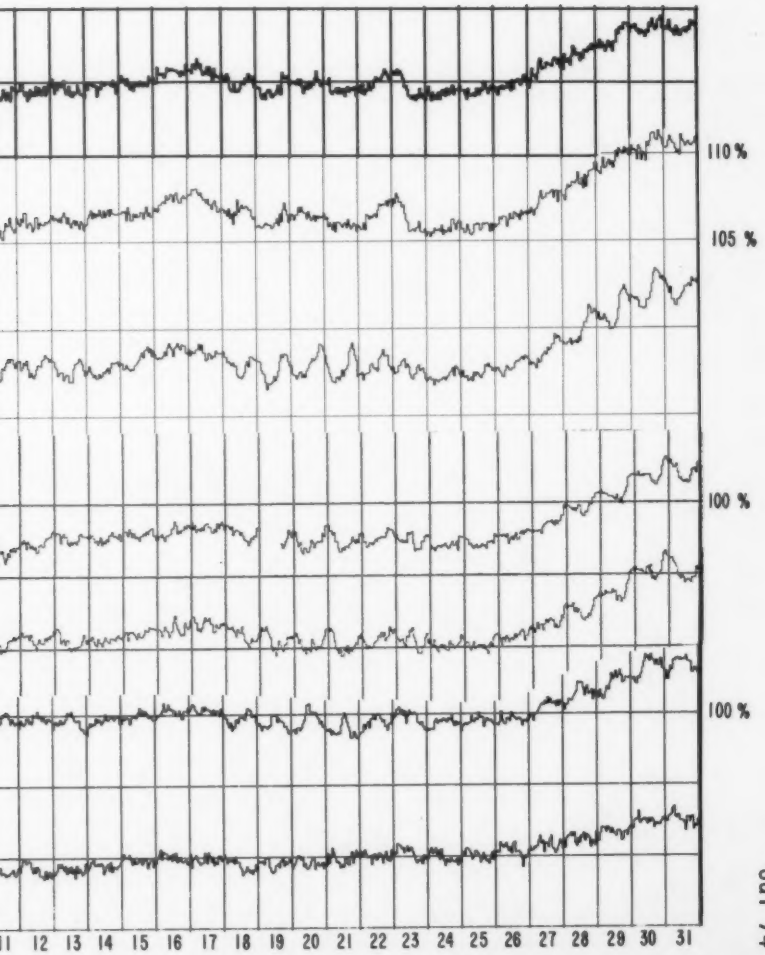
(Press


THULE
100 %
ALERT
DEEP RIVER
110 %
105 %
CALGARY
SULPHUR MOUNTAIN
95%
KIEL
TOKYO
100 %
1 2 3 4 5 6 7 8 9 10 11

COSMIC RAY INDICES

ressure Corrected Hourly Totals)

JULY 1974



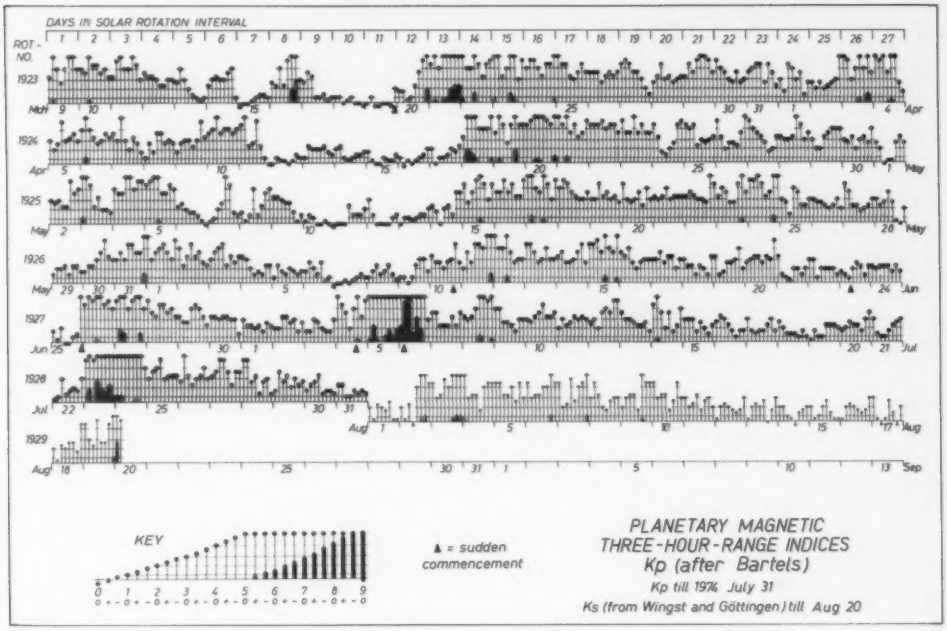
125
Jul 74

GEOMAGNETIC ACTIVITY INDICES

JULY 1974

Day	Three-Hour Range Indices Kp									Prel Ci	Cp	Ap	aa			
	1	2	3	4	5	6	7	8	Sum				N	S	M	
1 Q	3	2+	2+	2	2+	2-	3-	2+	19-	0.4	0.5	10	21	16	20	18
2	2	2	3+	3+	3-	3	2-	3-	21-	0.6	0.7	12	22	22	24	20
3 Q	2-	2-	3	3-	2	2-	2-	3	17+	0.4	0.5	9	23	17	21	20
4	5	4+	4-	2	4	5+	3+	5-	32+	1.2	1.3	31	46	34	31	49
5 D	5+	7-	5+	5	6-	6+	6-	6+	46+	1.8	1.8	74	76	83	81	78
6 D	7-	8+	9-	6	7+	6+	5	3	51+	1.9	1.9	130	102	182	155	79
7	4-	4-	2+	2+	2+	3+	2+	4-	24-	0.9	0.8	15	29	21	26	25
8 D	3+	3	3+	4	6-	5	5-	5+	34+	1.3	1.4	36	52	39	31	60
9	4	4	3-	3-	2+	2-	3	3	23+	0.8	0.9	15	31	27	37	21
10	3	3-	3+	4-	4+	3+	3+	4-	27+	1.0	1.0	20	37	40	37	40
11	2	3	2+	3-	3+	3	3+	3	23-	0.7	0.8	14	26	22	20	29
12	3-	3	2	4-	4	4-	5-	5-	28+	1.0	1.1	23	36	36	21	51
13	4-	3	3	3-	2+	2+	3-	2-	21+	0.7	0.7	12	27	25	31	22
14	4+	5+	4-	2	4-	2-	2+	4	27	1.1	1.1	23	33	34	40	27
15	3	3	3	2-	3-	2	1+	2+	19	0.5	0.6	10	21	22	26	18
16 Q	3-	3+	3	2+	2-	1	2-	2-	17+	0.4	0.5	10	18	20	22	16
17 Q	3	2-	1+	2-	2-	2+	3	2-	16+	0.2	0.5	8	22	13	17	18
18QQ	3-	2	1+	1+	1+	1	2-	1	12+	0.1	0.3	6	17	12	18	11
19QQ	1-	2-	1	1	2+	2+	2+	2	13+	0.2	0.3	6	16	11	10	18 K
20	2-	2	3-	2+	2+	2-	3	4-	19+	0.5	0.6	11	19	23	18	25
21 Q	3	1+	1	1	2-	2+	3-	3	16	0.3	0.5	9	20	15	16	20
22QQ	1-	1	3	1+	2-	2	2-	3	14+	0.4	0.4	8	15	13	12	17
23 D	5-	6+	5-	7	6+	6	7-	6-	47+	1.8	1.8	82	87	81	82	86
24 D	6-	6-	5	5	5	5+	5	4	41-	1.5	1.6	51	56	74	70	61
25	3	4-	4	5-	3	3+	3+	3+	28+	1.1	1.1	22	37	37	47	27
26	3-	5	3+	2+	3	3+	4	3	27-	0.9	1.0	20	38	27	27	33
27	3+	4-	5-	5-	4-	2+	4-	4-	30-	1.2	1.2	24	40	36	42	33
28	5-	5-	3-	3+	1+	3-	3	1+	24-	0.9	1.0	18	28	28	40	16
29	2-	4-	3-	3+	2	3	2+	3	21+	0.8	0.7	13	26	22	27	21
30QQ	2-	2+	3-	3+	1+	2-	2-	1+	16	0.6	0.5	8	17	18	23	11
31QQ	2+	2+	1	1	2-	1+	2-	1+	13-	0.2	0.3	6	13	13	14	12 CC
									MEAN	0.82	0.88	24	33.9	32.7	33.4	

GEOMAGNETIC ACTIVITY INDICES



DAILY AVERAGE INDICES Ap

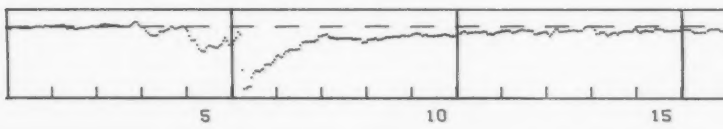
	1973					1974						
DAY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	12	5	5	4	4	17	13	20	17	9	28	10
2	16	6	31	7	2	9	12	18	15	18	18	12
3	7	6	48	5	5	11	8	20	39	24	19	9
4	8	12	12	18	29	13	7	10	35	34	9	31
5	9	15	10	14	17	14	8	18	18	35	6	74
6	13	9	12	9	10	12	7	20	26	6	6	130
7	8	8	6	28	8	2	10	13	18	15	3	15
8	9	8	6	11	7	10	5	17	13	13	6	36
9	5	44	10	12	21	7	4	33	16	11	7	15
10	4	27	21	8	8	14	14	30	26	3	15	20
11	4	12	11	6	8	6	30	32	19	5	32	14
12	5	7	15	4	4	5	40	15	3	5	29	23
13	10	8	17	10	4	5	20	10	7	4	21	12
14	8	4	7	8	6	8	12	16	5	10	18	23
15	4	12	6	8	8	15	4	3	4	30	37	10
16	3	14	30	10	4	15	7	42	4	26	16	10
17	2	10	27	17	6	16	11	9	6	38	15	8
18	4	7	22	19	3	24	1	3	48	24	10	6
19	6	3	20	4	13	9	4	2	39	18	13	6
20	9	12	20	6	29	14	12	23	46	18	18	11
21	6	15	37	23	34	16	23	68	35	18	7	9
22	12	17	20	7	25	5	14	39	31	22	8	8
23	22	63	6	8	18	4	44	42	29	25	7	82
24	46	28	7	26	4	4	29	34	19	39	8	51
25	29	27	5	42	3	50	34	28	20	14	10	22
26	18	25	3	18	4	38	28	20	21	11	40	20
27	26	8	4	14	6	34	26	22	19	14	54	24
28	28	4	20	6	11	18	27	18	23	10	26	18
29	20	4	86	5	19	22		34	19	7	19	13
30	13	4	28	4	15	21		20	16	17	15	8
31	9		19		17	19		24		30		6
MEAN	12	14	18	12	11	15	16	23	21	18	17	24

HOURLY EQUATORIAL Dst V

JULY 19

NASA/GODDARD SPACE FLIGHT CENTER

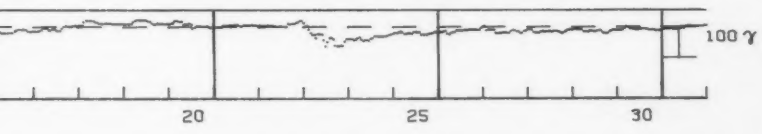
DAY	(Time-UT) 1	2	3	4	5	6	7	8	9	10	11	12
1	-1	-7	-1	1	1	-2	-5	-5	-4	-3	-3	-6
2	3	1	5	4	4	5	6	-1	-8	-4	-3	-7
3	2	3	7	8	9	6	7	3	3	3	4	3
4	-4	-7	-15	-22	-28	-31	-32	-31	-27	-17	-15	-17
5	-14	-32	-45	-46	-42	-60	-72	-78	-80	-79	-67	-60
6	-56	-44	-35	-16	-25	-136	-194	-189	-185	-183	-157	-143
7	-88	-94	-94	-85	-77	-75	-72	-71	-72	-73	-71	-69
8	-27	-25	-23	-32	-37	-38	-40	-40	-37	-40	-33	-37
9	-42	-40	-39	-43	-35	-41	-40	-41	-37	-35	-32	-33
10	-22	-21	-20	-23	-24	-29	-25	-25	-30	-29	-31	-31
11	-23	-21	-17	-14	-15	-21	-19	-19	-18	-17	-17	-18
12	-12	-14	-11	-12	-14	-20	-17	-16	-13	-11	-9	-11
13	-23	-31	-24	-16	-8	-10	-16	-17	-16	-14	-14	-12
14	-2	-12	-24	-22	-18	-20	-17	-26	-31	-25	-20	-18
15	-15	-22	-15	-14	-12	-16	-17	-18	-14	-7	-7	-9
16	-8	-11	-11	-11	-10	-17	-21	-22	-21	-19	-18	-19
17	-15	-15	-12	-8	-2	-5	-5	-11	-10	-6	-3	-11
18	6	7	17	22	21	19	19	17	14	12	9	8
19	8	8	9	10	18	22	24	24	23	23	24	21
20	11	13	19	21	19	15	14	7	6	9	12	7
21	0	-2	-2	-3	6	5	6	6	7	6	8	9
22	5	3	5	3	6	4	3	1	-1	-1	0	-1
23	3	4	-10	-20	-27	-27	-37	-24	-24	-27	-44	-64
24	-37	-39	-43	-39	-34	-31	-40	-47	-42	-41	-45	-37
25	-18	-20	-16	-15	-16	-22	-20	-19	-20	-24	-15	-15
26	-15	-16	-13	-12	-20	-26	-18	-16	-15	-10	-10	-12
27	4	-10	-8	-7	-7	-12	-20	-21	-20	-19	-17	-18
28	-8	-11	-16	-20	-17	-21	-14	-16	-18	-13	-15	-16
29	-5	-6	-7	-6	-6	-14	-15	-17	-12	-11	-13	-16
30	-3	-11	-7	-2	3	-2	-5	-8	-9	-11	-10	-5
31	-5	-8	-7	-5	-4	-9	-7	-5	-6	-4	-2	-2



T VALUES (PROVISIONAL)

Y 1974

12	13	14	15	16	17	18	19	20	21	22	23	24
-6	-5	-2	1	3	2	3	0	-2	4	1	2	3
-7	-11	-9	-5	-4	-6	-4	-2	-2	0	3	2	-2
3	-1	-1	-1	1	1	2	6	12	17	12	5	-1
7	-12	-9	-6	1	-1	-6	-6	-3	0	1	-1	-7
60	-60	-64	-66	-68	-66	-59	-54	-44	-35	-46	-59	-55
33	-137	-135	-141	-133	-129	-119	-116	-118	-117	-110	-102	-92
59	-57	-48	-48	-46	-47	-46	-46	-45	-43	-40	-29	-29
37	-40	-36	-38	-39	-43	-39	-40	-42	-42	-52	-49	-50
33	-33	-31	-30	-30	-31	-30	-27	-30	-29	-29	-28	-27
31	-31	-28	-27	-28	-25	-23	-28	-28	-33	-31	-30	-27
18	-21	-16	-15	-16	-24	-26	-24	-24	-18	-16	-17	-15
11	-14	-14	-14	-14	-17	-26	-24	-20	-24	-17	-16	-16
12	-15	-11	-11	-15	-16	-14	-13	-5	0	2	2	0
18	-20	-27	-20	-17	-14	-14	-14	-14	-17	-14	-7	-12
-9	-12	-10	-15	-17	-17	-16	-13	-12	-13	-12	-13	-12
19	-19	-12	-9	-6	-7	-6	-7	-11	-14	-15	-15	-16
11	-14	-12	-3	3	5	2	0	1	5	4	4	5
8	10	12	12	11	10	7	8	9	9	7	7	7
21	17	15	11	6	8	11	11	8	8	7	9	9
7	-5	-1	4	3	0	-1	1	3	3	-4	-1	0
9	5	2	3	6	6	5	6	7	6	4	5	6
-1	0	-2	0	11	10	11	11	15	17	21	17	11
54	-47	-36	-34	-40	-61	-63	-63	-62	-61	-46	-39	-40
37	-35	-29	-28	-33	-29	-32	-32	-28	-27	-25	-22	-20
15	-16	-19	-25	-27	-27	-24	-21	-20	-19	-16	-15	-17
12	-14	-9	-9	-8	-7	-7	-7	-7	-9	-9	-2	3
18	-21	-18	-12	-9	-12	-15	-17	-21	-20	-12	-11	-6
16	-14	-12	-13	-15	-18	-21	-19	-13	-9	-6	-6	-7
16	-12	-10	-11	-17	-21	-23	-19	-14	-10	-8	-10	-10
-5	-7	-7	-7	-9	-11	-11	-11	-12	-13	-12	-12	-9
-2	4	6	6	4	4	4	2	2	5	4	7	6



PRINCIPAL MAGNETIC STORMS

JULY 1974

OBS. 2 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
NE	55.1N	2	04--	..	..	..	..	02(3,4)	5	31	76	64	03	24
CO	64.6N	4	01--	..	..	..	..	05(4) 06(2,3,5,6)	7	445	2480	2000	07	12
SI	60.0N	4	01--	..	..	..	..	06(3)	9	200	1990	950	07	05
NE	55.1N	4	0113	SC	1	22	3	04(2)	6	32	90	192	04	10
HU	0.6S	4	0111	SC	--	9	3	06(2)	8	15	444	54	06	23
GN	43.2S	4	01--	..	..	..	..	5(6)	6	19	120	130	06	03
SI	66.0N	4	1535	SC	- 7.4	+23.3	+11.0	--	-	--	--	--	--	--
NE	55.1N	4	1533	SC	2	13	3	05(4)	8	85	534	709	05	18
WI	54.2N	4	1534	SC*	- 2 *	+84 *	8	04(6)	6	35	270	205	06	03
FR	49.6N	4	1533	SC*	4	14	1	06(2)	9	72	645	545	07	05
EB	43.9N	4	1534	SC*	+ 1.2	+34 *	+28 *	4(6) 5(1,2,7,8) 6(1)	5	16	143	103	--	--
TU	40.4N	4	1533	SC	- 1	+ 8	+ 1	06(3)	9	52	295	55	09	08
SJ	29.9N	4	1533	SC	0.5	15	3	06(2)	8	16	229	35	07	05
HO	21.1N	4	1534	SC	+ 0	+12	+06	05(4)	5	13	144	55	--	--
AL	9.5N	4	1534	SC	- 0.5	31	- 3	05 (7)	6	4	124	34	05	24
HY	7.6N	4	1534	SC	- 0.5	+28	- 2	05(7)	6	4	121	24	06	01
GU	4.0N	4	1534	SC	0.1	23	-06	05(4)	5	10	180	20	06	03
AN	1.5N	4	1534	SC	- 1.0	30	19	--	-	4	128	71	05	24
TV	1.1S	4	1534	SC	0.0	26	38	--	-	2	128	139	05	24
PM	18.7S	4	1533	SC	+ 0.5	+22	+19	05(2,4)	5	5	160	30	05	18
HR	33.7S	4	1534	SC	1	16	4	05(2,7)	5	31	99	75	06	03
KG	56.5S	4	1534	SC	--	--	--	06(2)	9	--	--	--	06	22
SI	60.0N	5	1931	SC*	+ 8.5	-58.9*	-12.5*	--	-	--	--	--	--	--
NE	55.1N	5	1931	SC*	3	36	6	--	-	--	--	--	--	--
GU	4.0N	5	1931	SI	--	--	--	--	-	--	--	--	--	--
PM	18.7S	5	1929	SC	+ 0.7	+19	+18	06(2)	8	7	380	150	09	06
SI	60.0N	6	0322	SC*	-34.3	165.6*	104.4	06(3)	9	--	--	--	--	--
NE	55.1N	6	0321	SC*	5	90	13	06(2,3)	9	318	1061	1215	07	10
WI	54.2N	6	0321	SC*	-17 *	+55	- 3	06(2)	8	35	440	340	07	05
EB	43.9N	6	0321	SC*	- 5.2*	+41 *		6(2)	7	18	213	114	09	04
HO	21.1N	6	0321	SC	+ 0	+29	+14	06(2)	8	13	212	65	07	05
AL	9.5N	6	0320	SC	- 1.5	33	-14	06 (2)	8	5	248	56	06	20
HY	7.6N	6	0320	SC	- 1.0	+34	- 8	06(2,3)	8	4	265	51	07	03
GU	4.0N	6	0321	SC	- 0.5	66	-20	06(2)	9	10	380	40	09	14
AN	1.5N	6	0320	SC	- 2.0	91	29	--	-	5	--	129	06	20
TV	1.1S	6	0320	SC	0.5	91	11.8	--	-	4	404	--	06	20
HR	33.7S	6	0321	SC*	8	41	37	06(2,3)	7	55	190	145	06	21
GN	43.2S	6	0322	SC*	-12 *	-60 *	-40	6(2,3)	7	32	230	170	06	22
HY	7.6N	7	1210	..	..	..	..	08(5,6)	4	8	64	39	09	13
NE	55.1N	8	0913	SC	7	45	6	08(7,8)	5	16	144	70	09	07
WI	54.2N	8	05--	..	..	..	..	08(5)	6	22	170	75	09	07
FR	49.6N	8	06--	..	..	..	..	08(8)	5	17	160	60	09	06
HU	0.6S	8	0100	..	..	..	..	08(6)	5	5	171	24	08	23
NE	55.1N	13	19--		..	..	..	14(2)	6	45	112	179	15	10
PM	18.7S	14	00--	..	..	..	..	14(2)	5	2	70	30	14	15
SI	60.0N	22	07--	..	..	..	..	23(4)	8	150	1480	780	28	11
NE	55.1N	22	21--	..	..	..	..	23(2)	7	60	314	556	26	10
FR	49.6N	22	21--	..	..	..	..	23(2)	6	35	158	112	28	06
EB	43.9N	22	23--	..	..	..	..	23(7)	6	20	156	138	24	24
HY	7.6N	22	2345	..	..	..	..	23(4,5)	6	4	153	25	25	11
KG	56.5S	22	01--	..	..	..	..	23(7)	7	--	--	--	25	--
CO	64.6N	23	00--	..	..	..	..	23(4,5) 24(3,4) 25(4)	7	292	2320	1490	25	16
WI	54.2N	23	01--	..	..	..	..	23(4)	7	35	310	170	28	06
TU	40.4N	23	01--	..	..	..	..	23(2,4) 24(2)	6	17	130	45	28	12
SJ	29.9N	23	0050	..	..	..	..	23(6)	6	10	110	38	24	16
HO	21.1N	23	00--	..	..	..	..	23(2)	5	11	111	37	24	18
GU	4.0N	23	0006	..	..	..	..	23(4)	6	10	210	50	25	18
HU	0.6S	23	0100	..	..	..	..	23(5,6,7)	5	8	203	48	23	23
PM	18.7S	23	00--	..	..	..	..	23(4)	6	5	200	70	26	09
HR	33.7S	23	0100	..	..	..	..	23(7) 24(1)	6	38	142	125	24	23
GN	43.2S	23	00--	..	..	..	..	23(4,5)	6	21	150	130	28	12
CO	64.6N	27	02--	..	..	..	..	27(3,4)	7	144	1370	620	27	16
NE	55.1N	27	0023	..	..	..	..	27(3)	6	41	126	153	28	12

Reports were received from the following observatories:

College Sitka, Newport Witteveen, Fredericksburg Ebro, Tucson San Juan, Honolulu Alibag, Hyderabad Guam, Annamalainagar Huancayo, Trivandrum Port Moresby, Hermanus Gnangara Port-aux-Francais

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

JULY 1974

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS (by Dr. A. Romana)

The meaning of the station symbols is given in the IAGA-Bullletins nr. 12 and 32. Times of ssc and si are mean values. If given by ten or more stations they are underlined.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

04 1534 A: SO NU WN WI DB LG IK CI QU HU LM; B: DO NI VL AQ KA KS SZ TO KG CZ?; C: VI EB (si: A: SI)

05 1930 A: SI KS QU; B: TO (si: B: HU; C: KA - bps: A: IK)

06 0322 A: WN WI VL DB LG AQ IK EB CI QU SZ HU LM TO; B: KA CZ (si: A: BI; B: VI)

Sudden impulses found in the magnetograms (si)

n o n e

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

01 1142 - 1154 SZ

02 0731 - 0837 WN TN

02 1543 - 1612 LG (si: C: LM)

03 0305 - 0335 KA

03 0832 - 0902 WN WI DB AQ EB (ssc: B: QU - si: B: IK; C: LM)

04 0647 - 0651 WN? NI LG IK EB KA QU (si: A: LM; B: WI VL AQ)

04 1351 - 1358 WN WI EB HU TN (ssc: A: FR SZ LM; B: SO VI; C: NI - si: A: NU IK KS; B: DO VL AQ)

05 1220 - 1230 WN

05 1508 - 1605 WN HU

06 1621 - 1633 HU

07 1210 - 1228 WN

13 1008 - 1017 QU

14 1331 - 1341 SZ

20 1143 - 1159 SZ

31 0422 - 0440 KA

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

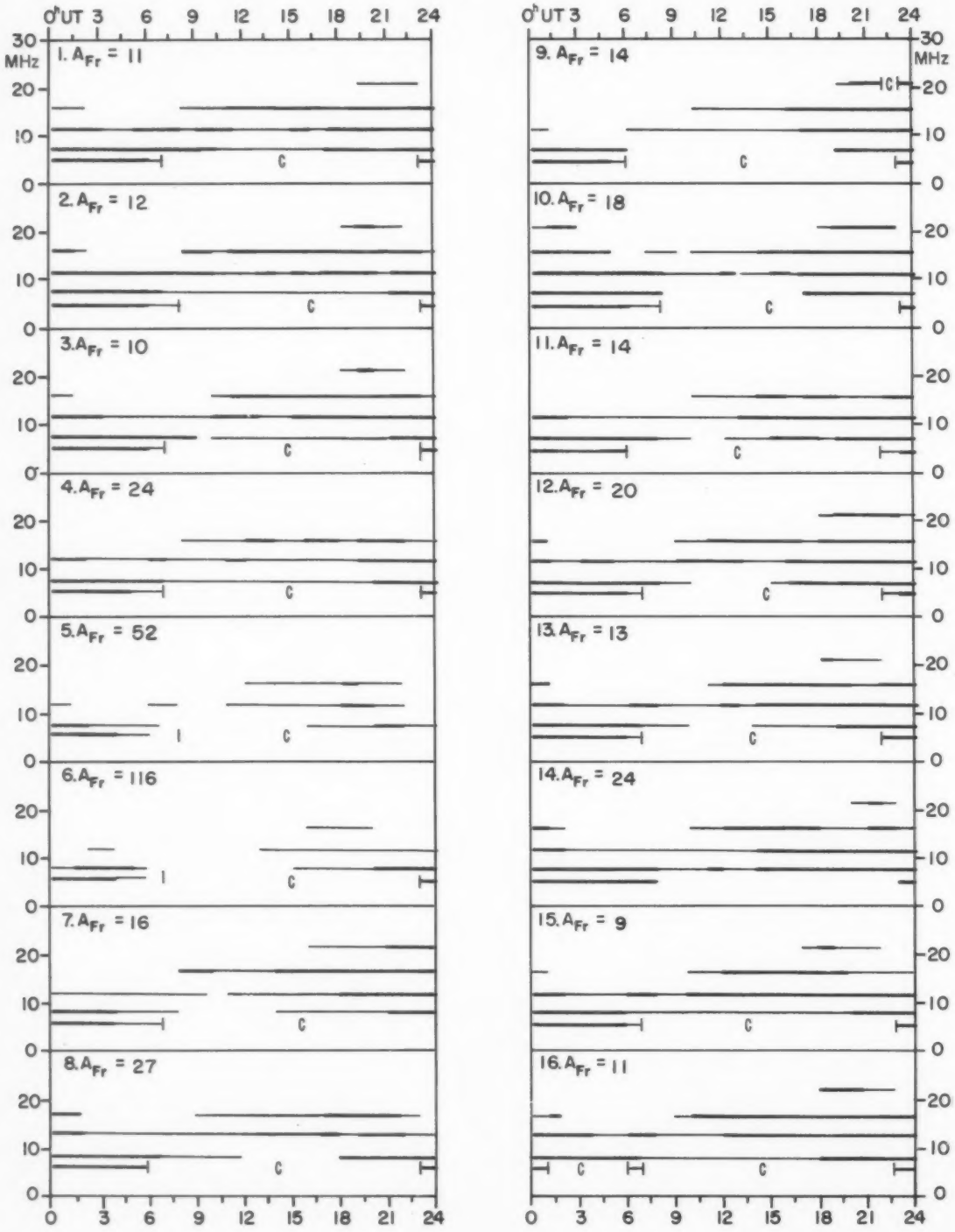
North Atlantic

JULY 1974

JUL 1974	WHOLE DAY INDICES NORTH ATLANTIC	ADVANCE FORECASTS (JC-REPORTS) FOR WHOLE DAY	NORTH ATLANTIC								GEOMAGNETIC INDICES		
			6-HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF				K_{FR}		A_{FR}
			00 TO 06	06 TO 12	12 TO 18	18 TO 24	02	08	14	20	HALF DAY (1)	HALF DAY (2)	OBSERVED
01	6-	6	6o	5+	6-	6-	6	6	6	6	3	3	11
02	6-	6	7-	4+	6-	6-	6	6	6	6	3	3	12
03	6-	6	6+	5o	6-	6o	6	6	6	6	3	2	10
04	6-	5	6o	5-	5+	6o	6	5	5	6	(4)	(4)	24
05	4+	4	6-	4+	4-	4+	5	4	5	4	(5)	(4)	52
06	4+	4	5-	5-	4-	4-	2	2	3	3	(7)	(5)	116
07	5+	5	4+	5-	6-	6o	2	3	5	5	3	3	16
08	5o	5	6o	4+	5-	6-	6	6	6	5	(4)	(4)	27
09	5+	6	5o	5o	5+	6-	4	5	5	6	3	3	14
10	6-	6	6o	6o	5+	5o	5	6	5	6	3	3	18
11	6-	6	6-	5+	6+	6-	6	5	6	6	3	3	14
12	6-	5	6o	6-	6-	6-	6	6	6	6	3	(4)	20
13	6-	5	6-	6-	6-	6o	6	5	6	6	3	2	13
14	6-	5	6-	5+	6o	5+	6	5	5	6	(4)	3	24
15	6-	6	5o	5+	5+	6o	5	5	6	6	3	2	9
16	6o	6	6+	6o	5+	6o	6	5	6	6	3	1	11
17	6o	6	6o	6o	6-	6o	6	6	7	7	2	2	8
18	6+	6	7-	6+	6-	6o	6	6	7	7	2	1	6
19	6o	6	6+	5-	6o	6+	7	7	7	7	1	2	6
20	6-	6	6o	5-	6o	6-	7	6	6	6	2	2	9
21	6o	6	6o	6-	6+	7-	6	6	6	6	2	3	9
22	6o	5	7-	5o	6-	7o	6	6	6	6	2	2	11
23	5o	4	5+	5+	5-	5o	6	5	5	4	(5)	(4)	42
24	5-	4	5o	5-	4-	5+	4	3	5	5	(5)	(4)	35
25	5o	4	6-	4o	5o	6-	4	4	5	5	(4)	3	20
26	6-	5	6-	6-	6o	6o	5	5	6	6	3	3	17
27	6o	5	6o	6o	6-	6o	5	5	5	6	(4)	3	24
28	6o	5	6o	6o	6-	6+	5	5	5	5	(4)	2	16
29	6o	6	7-	6-	6o	6+	5	5	6	6	3	3	15
30	6-	6	6o	6-	6-	6o	6	5	6	6	3	2	11
31	6-	6	5+	5+	6o	6+	6	6	6	6	2	2	6

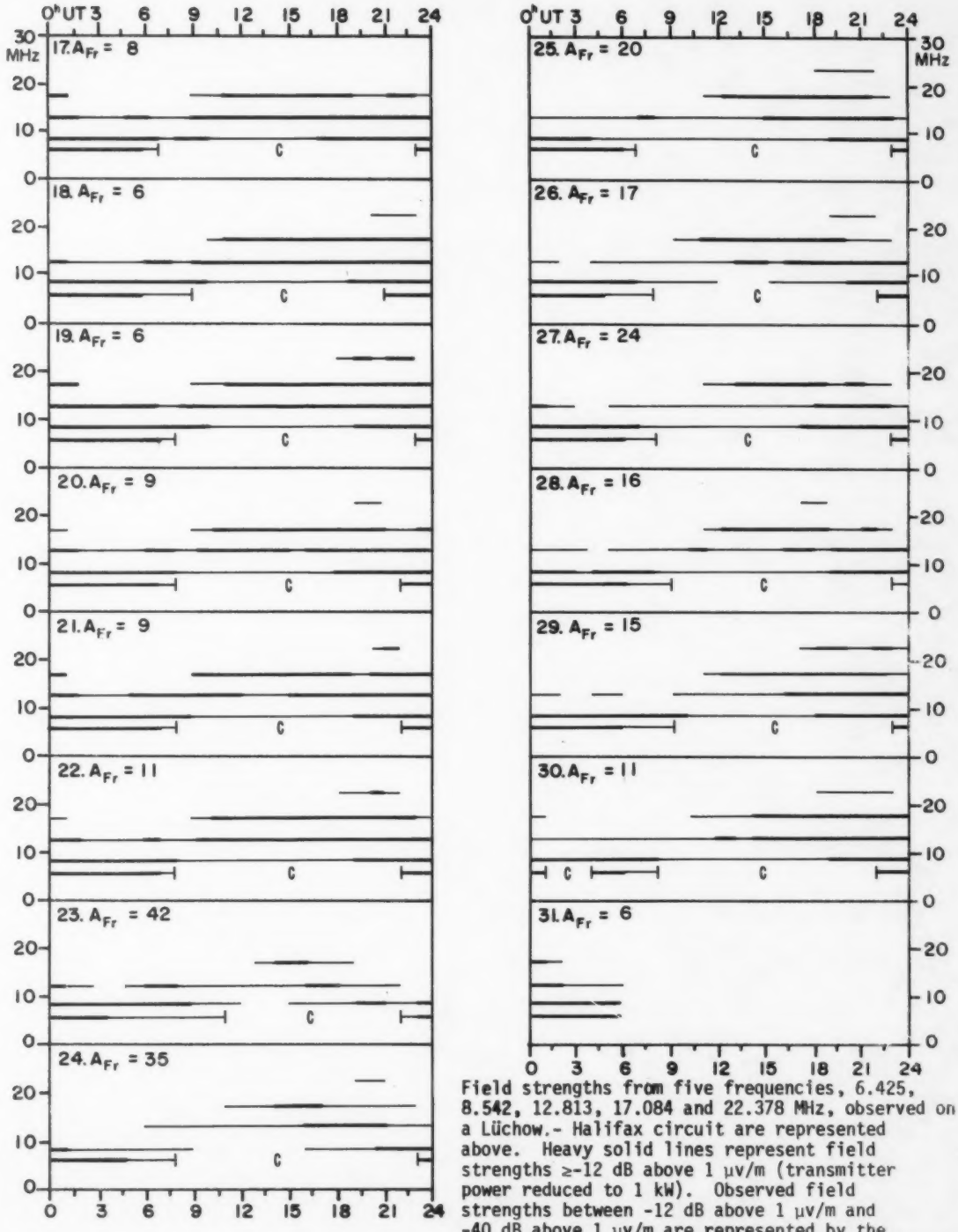
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JULY 1974



TRANSMISSION FREQUENCY RANGES – NORTH ATLANTIC PATH

JULY 1974



Field strengths from five frequencies, 6.425, 8.542, 12.813, 17.084 and 22.378 MHz, observed on a Lüchow.- Halifax circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line. Adopted from Observations by Deutsche Bundespost

RADIO PROPAGATION QUALITY INDICES

JULY 1974

Quality Indices calculated for reception at Lüchow

	TOKYO	HALIFAX	AFRICA	CANBERRA
1	4.7	8.0	8.4	4.6
2	4.9	7.5	7.8	4.7
3	5.1	6.8	8.5	4.2
4	2.9	4.5	7.5	4.5
5	1.6	2.9	5.8	3.5
6	1.8	2.7	5.7	2.2
7	4.3	6.2	8.1	3.2
8	3.4	4.6	8.7	3.4
9	5.2	6.0	7.5	3.1
10	5.1	6.4	7.7	3.9
11	4.9	5.7	7.1	4.4
12	5.2	6.4	7.1	5.1
13	5.9	5.9	8.0	5.5
14	4.9	6.1	7.7	5.1
15	5.6	6.4	8.2	4.8
16	5.4	6.8	8.5	5.4
17	5.8	7.0	7.8	4.6
18	6.5	8.1	8.5	5.4
19	6.9	8.3	8.0	4.9
20	6.4	7.9	7.2	4.4
21	6.5	8.1	8.4	4.4
22	6.4	7.2	8.0	5.1
23	3.5	3.8	7.0	3.8
24	5.1	4.6	8.6	4.4
25	5.0	5.4	8.9	3.6
26	5.5	6.4	7.2	3.8
27	5.4	4.9	6.2	3.6
28	5.1	5.6	8.2	4.2
29	5.8	6.5	8.1	4.8
30	5.7	6.2	8.2	4.8
31	6.9	7.7	8.9	4.6

The method of calculation of the radio propagation indices has been changed. An absolute quality figure is calculated for a 24-hour period from Tokyo, Halifax, Mauritius (Africa) and Canberra. The figure 0.0 corresponds to a median field strength of -30 dB above 1μV/m (converted into 1 kW and referred to an omnidirectional antenna). The figures 1 to 10 are in steps of 5 dB with the figure 10.0 corresponding to a median field strength of +20 dB above 1μV/m. The field strength of the frequency with the highest value for each hour is used in place of a mean of all recorded frequencies. This is done on the assumption that the optimum frequency would be used for communication.

USCOMM-NOAA-ASHEVILLE--9-30-74--1000

AMERICAN REVOLUTION BICENTENNIAL
1776-1976